

02716.0005.NPUS01.ST25.txt
SEQUENCE LISTING

<110> JENSEN, Rasmus B.
KELEMEN, Bradley

<120> PROTEORHODOPSIN MUTANTS WITH IMPROVED OPTICAL CHARACTERISTICS

<130> 02716.0005.NPUS01

<150> 60/429,518
<151> 2002-11-26

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<170> PatentIn version 3.2

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<212> PRT
<213> Marine eubacteria

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35 40 45

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
50 55 60

Ala Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr
65 70 75 80

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg
85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr
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Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys
115 120 125

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
130 135 140

Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly
145 150 155 160

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Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala
 165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
 180 185 190

Met Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
 195 200 205

Gly Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu
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Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe Phe
35 40 45

Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr Val
50 55 60

Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met Arg
65 70 75 80

Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr Ile
85 90 95

Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu Ile
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Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu Leu
115 120 125

Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala Gly
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Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp Val
145 150 155 160

Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys Asn
165 170 175

Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr Ile
180 185 190

Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly Tyr
195 200 205

Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr Asn
210 215 220

Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp Asn
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35 40 45

Phe Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu
50 55 60

Thr Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr
65 70 75 80

Met Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg
Page 4

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr
 100 105 110

Leu Ile Leu Ala Ala Ala Thr Asn Val Ala Ala Gly Leu Phe Lys Lys
 115 120 125

Leu Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu
 130 135 140

Ala Gly Ile Met Asn Ala Trp Gly Ala Phe Val Ile Gly Cys Leu Ala
 145 150 155 160

Trp Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ala Ala
 165 170 175

Cys Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met
 180 185 190

Tyr Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr
 195 200 205

Gly Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile
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 35 40 45

Phe Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu
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Thr Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr
65 70 75 80

Met Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg
85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr
100 105 110

Leu Ile Leu Ala Ala Ala Thr Asn Val Ala Ala Gly Leu Phe Lys Lys
115 120 125

Leu Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu
130 135 140

Ala Gly Ile Met Asn Ala Trp Gly Ala Phe Val Ile Gly Cys Leu Ala
145 150 155 160

Trp Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ala Ala
165 170 175

Cys Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met
180 185 190

Tyr Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr
195 200 205

Gly Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile
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Phe Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu
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Thr Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr
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Met Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg
85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr
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Leu Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys
115 120 125

Leu Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu
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Ala Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala
145 150 155 160

Trp Val Tyr Met Ile Tyr Glu Leu Tyr Ala Gly Glu Gly Lys Ser Ala
165 170 175

Cys Asn Thr Ala Ser Pro Ser Val Gln Ser Ala Tyr Asn Thr Met Met
180 185 190

Ala Ile Ile Val Phe Gly Trp Ala Ile Tyr Pro Ile Gly Tyr Phe Thr
195 200 205

Gly Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile
210 215 220

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Val Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe
35 40 45

Phe Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu
50 55 60

Thr Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr
65 70 75 80

Met Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg
85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr
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Leu Ile Leu Ala Ala Ala Thr Asn Val Ala Ala Gly Leu Phe Lys Lys
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Leu Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu
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Ala Gly Ile Met Asn Ala Trp Gly Ala Phe Val Ile Gly Cys Leu Ala
 145 150 155 160

Trp Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ala Ala
 165 170 175

Cys Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met
 180 185 190

Tyr Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr
 195 200 205

Gly Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile
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35 40 45

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
50 55 60

Thr Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr
65 70 75 80

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg
85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr
100 105 110

Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys
115 120 125

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
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165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
180 185 190

Lys Ile Ile Val Ile Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
Page 10

Gly Tyr Leu Met Ser Gly Asp Gly Val Tyr Ala Ser Asn Leu Asn Leu
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Ile Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile
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Val Ser Phe Trp Leu Val Thr Ala Gly Met Leu Ala Ala Thr Val Phe
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 65 70 75 80

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg
 85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Val Val Glu Phe Tyr
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Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys
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Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly
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Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala
 165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
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Met Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
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Gly Tyr Leu Met Gly Gly Glu Val Tyr Ala Ser Asn Leu Asn Leu
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 35 40 45

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
 50 55 60

Thr Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr
 65 70 75 80

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg
 85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr
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Leu Ile Leu Ala Ala Cys Thr Asn Val Ala Ala Ser Leu Phe Lys Lys
 115 120 125

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Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala
165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
180 185 190

Val Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
195 200 205

Gly Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu
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35 40 45

Phe Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu
50 55 60

Thr Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr
65 70 75 80

Met Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg
85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr
100 105 110

Leu Ile Leu Ala Ala Ala Thr Asn Val Ala Ala Gly Leu Phe Lys Lys
115 120 125

Leu Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu
130 135 140

Ala Gly Ile Met Asn Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala
145 150 155 160

Trp Val Tyr Met Ile Tyr Glu Leu Tyr Ala Gly Glu Gly Lys Ser Ala
165 170 175

Cys Asn Thr Ala Ser Pro Ser Val Gln Ser Ala Tyr Asn Thr Met Met
180 185 190

Ala Ile Ile Val Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr
195 200 205

02716.0005.NPUS01.ST25.txt

Gly Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile
210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile
225 230 235 240

Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 18

<211> 251

<212> PRT

<213> Marine eubacteria

<400> 18

Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro
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Thr Phe Ala Ala Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly
20 25 30

Val Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe
35 40 45

Phe Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu
50 55 60

Thr Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr
65 70 75 80

Met Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg
85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr
100 105 110

Leu Ile Leu Ala Ala Ala Thr Asn Val Ala Ala Gly Leu Phe Lys Lys
115 120 125

Leu Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu
130 135 140

Ala Gly Ile Met Asn Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala
145 150 155 160

Trp Val Tyr Met Ile Tyr Glu Leu Tyr Ala Gly Glu Gly Lys Ser Ala
165 170 175

02716.0005.NPUS01.ST25.txt

Cys Asn Thr Ala Ser Pro Ser Val Gln Ser Ala Tyr Asn Thr Met Met
 180 185 190

Ala Ile Ile Val Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr
 195 200 205

Gly Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile
 210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile
 225 230 235 240

Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 19
 <211> 753
 <212> DNA
 <213> Marine eubacteria

<400> 19
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 aaaacatcat taactgtatc tggtcttgtt actggatttg ctttctggca ttacatgtac 240
 atgagagggg tatggattga aactgggtat tcgccaactg tatttagata cattgattgg 300
 ttactaacag ttcctctatt aatatgtaa ttctacttaa ttcttgctgc tgctactaat 360
 gttgctgctg gcctgtttaa gaaattattg gttggttctc ttgttatgct tgtgtttgg 420
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<210> 20
 <211> 753
 <212> DNA
 <213> Marine eubacteria

<400> 20
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gctttattag catctactgt	180
atttttcttt gttgaaagag	
atagagtttc tgcaaaatgg	
aaaacatcat taactgtatc	240
tggtcttgtt actggatttg	
ctttctggca ttacatgtac	
atgagagggg tatggattga	300
aactggtgat tcgccaactg	
tathtagata cattgattgg	
ttactaacag ttcctctatt	360
aatatgtgaa ttctacttaa	
ttcttgctgc tgctactaat	
gttgctgctg gcctgtttaa	420
gaaattattt gttggttctc	
ttgttatgct tgtgtttgg	
tacatgggtg aagcaggaat	480
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gctttggctt ggagaaggaa	
aagctgcgtg taatacagca	
agtcctgctg ttcagtcagc	600
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atttatcctg taggttattt	660
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acggtggtac agcacttaac	
ttaaacctta tctataacct	720
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tggaatgtt ctgttaaaga	753
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<210> 21

<211> 251

<212> PRT

<213> Marine eubacteria

<400> 21

Thr	Met	Gly	Lys	Leu	Leu	Leu	Ile	Leu	Gly	Ser	Val	Ile	Ala	Leu	Pro
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Thr	Phe	Ala	Ala	Gly	Gly	Gly	Asp	Leu	Asp	Ala	Ser	Asp	Tyr	Thr	Gly
				20			25				30				

Val	Ser	Phe	Trp	Leu	Val	Thr	Ala	Ala	Leu	Leu	Ala	Ser	Thr	Val	Phe
				35			40				45				

Phe	Phe	Val	Glu	Arg	Asp	Arg	Val	Ser	Ala	Lys	Trp	Lys	Thr	Ser	Leu
				50		55			60						

Thr	Val	Ser	Gly	Leu	Val	Thr	Gly	Ile	Ala	Phe	Trp	His	Tyr	Met	Tyr
65				70				75				80			

Met	Arg	Gly	Val	Trp	Ile	Glu	Thr	Gly	Asp	Ser	Pro	Thr	Val	Phe	Arg
				85		90					95				

Tyr	Ile	Asp	Trp	Leu	Leu	Thr	Val	Pro	Leu	Leu	Ile	Cys	Glu	Phe	Tyr
				100			105				110				

Leu	Ile	Leu	Ala	Ala	Ala	Thr	Asn	Val	Ala	Ala	Gly	Leu	Phe	Lys	Lys
				115			120				125				

Leu	Leu	Val	Gly	Ser	Leu	Val	Met	Leu	Val	Phe	Gly	Tyr	Met	Gly	Glu

02716.0005.NPUS01.ST25.txt
 130 135 140

Ala Gly Ile Met Asn Ala Trp Gly Ala Phe Val Ile Gly Cys Leu Ala
 145 150 155 160

Trp Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ala Ala
 165 170 175

Cys Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met
 180 185 190

Tyr Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr
 195 200 205

Gly Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile
 210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile
 225 230 235 240

Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 22

<211> 753

<212> DNA

<213> Marine eubacteria

<400> 22

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gctttattag catctactgt atttttcttt gttgaaagag atagagttc tgcaaatgg	180
aaaacatcat taactgtatc tggcttggtt actggatttg ctttctggca ttacatgtac	240
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gttgctgctg gcctgtttaa gaaattattg gttggttctc ttgttatgct tgtgtttgg	420
tacatgggtg aggccaggaat tatgaacgct tgggtgcatt tcgttattgg gtgttagct	480
tgggtataca tgatttatga actatggct ggagaaggca aggctgcatt taatactgca	540
agtccctgctg tgcaatcagc ttacaacaca atgatgtata taatcatctt tggttggca	600
atttatcctg taggttattt cacaggttac ctaatgggtg acggtgatc agctcttaac	660
ttaaacctta tctataacct tgctgacttt gttacaaga ttctatttgg tttaattata	720
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02716.0005.NPUS01.ST25.txt

<210> 23
<211> 251
<212> PRT
<213> Marine eubacteria

<400> 23

Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro
1 5 10 15

Thr Phe Ala Ala Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly
20 25 30

Val Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe
35 40 45

Phe Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu
50 55 60

Thr Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr
65 70 75 80

Met Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg
85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr
100 105 110

Leu Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys
115 120 125

Leu Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu
130 135 140

Ala Gln Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala
145 150 155 160

Trp Val Tyr Met Ile Tyr Glu Leu Tyr Ala Gly Glu Gly Lys Ser Ala
165 170 175

Cys Asn Thr Ala Ser Pro Ser Val Gln Ser Ala Tyr Asn Thr Met Met
180 185 190

Ala Ile Ile Val Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr
195 200 205

Gly Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile
210 215 220

02716.0005.NPUS01.ST25.txt

Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Leu Gly Leu Ile Ile
225 230 235 240

Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 24
<211> 753
<212> DNA
<213> Marine eubacteria

<400> 24
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gctctattag catctactgt atttttcttt gttgaaagag atagagttc tgcaaaatgg 180
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tggaatgttg ctgttaaaga atcttctaat gct 753

<210> 25
<211> 249
<212> PRT
<213> Marine eubacteria

<400> 25

Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro
1 5 10 15

Thr Phe Ala Ala Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly
20 25 30

Val Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe
35 40 45

Phe Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu
50 55 60

02716.0005.NPUS01.ST25.txt

Thr Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr
65 70 75 80

Met Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg
85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr
100 105 110

Leu Ile Leu Ala Ala Ala Asn Val Ala Gly Ser Leu Phe Lys Lys
115 120 125

Leu Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu
130 135 140

Ala Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala
145 150 155 160

Trp Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala
165 170 175

Cys Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met
180 185 190

Tyr Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr
195 200 205

Gly Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile
210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile
225 230 235 240

Trp Asn Val Ala Val Lys Glu Ser Ser
245

<210> 26

<211> 748

<212> DNA

<213> Marine eubacteria

<400> 26

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gctttattag catctactgt atttttcttt gttgaaagag atagagttc tgcaaaatgg 180

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02716.0005.NPUS01.ST25.txt

atgagagggg tatggattga aactggtgat tcgccaactg tatttagata cattgattgg	300
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gttgctggat cattatttaa gaaattacta gttggttctc ttgttatgct tgtgtttgg	420
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tgggtataca tgatttatga attatggct ggagaaggaa aatctgcatg taatactgca	540
agtcctgctg tgcaatcagc ctacaacaca atgatgtata ttatcatctt tggttggcg	600
atttatcctg taggttattt cacaggttac ttgatgggtg acggtggtc agctcttaac	660
ttaaacctta tctataacct tgctgactt gtaacaaga ttctattgg tttaattata	720
tggaaatgttgc tggttaaaga atcttcta	748

<210> 27
 <211> 251
 <212> PRT
 <213> Marine eubacteria

<400> 27

Thr Met Gly Lys Leu Leu Leu Ile Ile Gly Ser Val Ile Ala Leu Pro
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Thr Phe Ala Ala Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly
 20 25 30

Val Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe
 35 40 45

Phe Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu
 50 55 60

Thr Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr
 65 70 75 80

Met Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg
 85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr
 100 105 110

Leu Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys
 115 120 125

Leu Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu
 130 135 140

02716.0005.NPUS01.ST25.txt

Ala Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala
 145 150 155 160

Trp Val Tyr Met Ile Tyr Glu Leu Tyr Ala Gly Glu Gly Lys Ser Ala
 165 170 175

Cys Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met
 180 185 190

Tyr Ile Ile Val Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr
 195 200 205

Gly Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile
 210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile
 225 230 235 240

Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 28

<211> 753

<212> DNA

<213> Marine eubacteria

<400> 28		
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<210> 29

<211> 249

02716.0005.NPUS01.ST25.txt

<212> PRT

<213> Marine eubacteria

<400> 29

Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro
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Thr Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly
20 25 30

Val Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe
35 40 45

Phe Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu
50 55 60

Thr Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr
65 70 75 80

Met Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg
85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr
100 105 110

Leu Ile Leu Ala Ala Ala Thr Asn Val Ala Ala Gly Leu Phe Lys Lys
115 120 125

Leu Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu
130 135 140

Ala Gly Ile Met Asn Ala Trp Gly Ala Phe Val Ile Gly Cys Leu Ala
145 150 155 160

Trp Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ala Ala
165 170 175

Cys Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met
180 185 190

Tyr Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr
195 200 205

Gly Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile
210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Asn Leu Phe Gly Leu Ile Ile
225 230 235 240

02716.0005.NPUS01.ST25.txt

Trp Asn Val Ala Val Lys Glu Ser Ser
245

<210> 30
<211> 748
<212> DNA
<213> Marine eubacteria

<400> 30
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gctctattag catctactgt attttcttt gttgaaagag atagagttc tgcaaaatgg 180
aaaacatcat taactgtatc gggcttggtt actggatttg ctttctggca ttacatgtac 240
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tggaaatgttg ctgttaaaga atcttcta 748

<210> 31
<211> 251
<212> PRT
<213> Marine eubacteria

<400> 31

Thr Met Gly Lys Leu Leu Arg Ile Leu Gly Ser Val Ile Ala Leu Pro
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Thr Phe Ala Ala Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly
20 25 30

Val Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe
35 40 45

Phe Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu
50 55 60

Thr Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr
Page 26

65

70

75

80

Met Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg
 85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr
 100 105 110

Leu Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys
 115 120 125

Leu Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu
 130 135 140

Ala Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala
 145 150 155 160

Trp Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala
 165 170 175

Cys Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met
 180 185 190

Tyr Ile Ile Ile Val Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr
 195 200 205

Gly Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile
 210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile
 225 230 235 240

Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 32

<211> 753

<212> DNA

<213> Marine eubacteria

<400> 32

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gctctattag catctactgt atttttcttt gttgaaagag atagagttc tgcaaaatgg 180

aaaacatcat taactgtatc tggcttggtt actggatttg ctttctggca ttacatgtat 240

atgagaggag tatggattga aactgggtat tcgccaactg tatttagata cattgattgg 300

02716.0005.NPUS01.ST25.txt

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tacatgggtg	aagcaggaat	catggctgca	tggcctgcat	tcattattgg	gtgttttagct	480
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ttaaacctt	tctataacct	tgctgacttt	gttaacaaga	ttctatttgg	tttaatttata	720
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<210> 33

<211> 251

<212> PRT

<213> Marine eubacteria

<400> 33

Thr	Met	Gly	Lys	Leu	Leu	Leu	Ile	Leu	Gly	Ser	Val	Ile	Ala	Leu	Pro
1				5				10						15	

Thr	Phe	Ala	Ala	Gly	Gly	Gly	Asp	Leu	Asp	Ala	Ser	Asp	Tyr	Thr	Gly
				20				25					30		

Val	Ser	Phe	Trp	Leu	Val	Thr	Ala	Ala	Leu	Leu	Ala	Ser	Thr	Val	Phe
				35			40					45			

Phe	Phe	Val	Glu	Arg	Asp	Arg	Val	Ser	Ala	Lys	Trp	Lys	Thr	Ser	Leu
				50			55			60					

Thr	Val	Ser	Gly	Leu	Val	Thr	Gly	Ile	Ala	Phe	Trp	His	Tyr	Met	Tyr
				65			70			75			80		

Met	Arg	Gly	Val	Trp	Ile	Glu	Thr	Gly	Asp	Ser	Pro	Thr	Val	Phe	Arg
				85			90					95			

Tyr	Ile	Asp	Trp	Leu	Leu	Thr	Val	Pro	Leu	Leu	Ile	Cys	Glu	Phe	Tyr
				100			105					110			

Leu	Ile	Leu	Ala	Ala	Ala	Thr	Asn	Val	Ala	Gly	Ser	Leu	Phe	Lys	Lys
				115			120					125			

Leu	Leu	Val	Gly	Ser	Leu	Val	Met	Leu	Val	Phe	Gly	Tyr	Met	Gly	Glu
				130			135				140				

Ala	Gly	Ile	Met	Ala	Ala	Trp	Pro	Ala	Phe	Ile	Ile	Gly	Cys	Leu	Ala
				145			150			155			160		

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Trp Val Tyr Met Ile Tyr Glu Leu Tyr Ala Gly Glu Gly Lys Ser Ala
165 170 175

Cys Asn Thr Ala Ser Pro Ser Val Gln Ser Ala Tyr Asn Thr Met Met
180 185 190

Ala Ile Ile Val Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr
195 200 205

Gly Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile
210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile
225 230 235 240

Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 34

<211> 753

<212> DNA

<213> Marine eubacteria

<400> 34

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gctctattag catctactgt atttttcttt gttgaaagag atagagttc tgcaaaatgg 180
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gttgcggct cattatttaa gaaacttcta gttggttctc ttgttatgct tgtgtttgg 420
tacatgggtg aagcaggaat tatggcagct tggcctgcat tcattattgg gtgttttagct 480
tgggtataca tgatttatga actatatgct ggagaaggaa aatctgcatg taatactgca 540
agtccttcgg ttcaatcagc ttacaacaca atgatggcta tcatagtctt cggttgggca 600
atttatcctg taggttattt cacaggttac ctaatgggtg acggtggtac agctcttaac 660
ttaaacctta tttataacct tgctgacttt gttaacaaga ttcttattgg tttaattata 720
tggaaatgttgc tgtaaaga atcttctaat gct 753

<210> 35

<211> 251

<212> PRT

<213> Marine eubacteria

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<400> 35

Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro
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20 25 30Val Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe
35 40 45Phe Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu
50 55 60Thr Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr
65 70 75 80Met Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg
85 90 95Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr
100 105 110Leu Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys
115 120 125Leu Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu
130 135 140Ala Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala
145 150 155 160Trp Val Tyr Met Ile Tyr Glu Leu Tyr Ala Gly Glu Gly Lys Ser Ala
165 170 175Cys Asn Thr Ala Ser Pro Ser Val Gln Ser Ala Tyr Asn Thr Met Met
180 185 190Ala Ile Ile Val Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr
195 200 205Gly Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile
210 215 220Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile
225 230 235 240Trp Asn Ala Ala Val Lys Glu Ser Ser Asn Ala
Page 30

<210> 36
 <211> 753
 <212> DNA
 <213> Marine eubacteria

<400> 36
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 aaaacatcat taactgtatc tggtcttgtt actggatttg ctttctggca ttacatgtac 240
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 ttactaacag ttccctctatt aatatgtgaa ttctacttaa ttcttgctgc tgctactaat 360
 gttgccggct cattatttaa gaaacttcta gttggttctc ttgttatgct tgggtttgg 420
 tacatgggtg aagcaggaat tatggcagct tggcctgcat tcattattgg gtgttttagct 480
 tgggtataca tgatttatga actatatgct ggagaaggaa aatctgcatg taataactgca 540
 agtccttcgg ttcaatcagc ttacaacaca atgatggcta tcatagtctt cggttggca 600
 atttatccctg taggttattt cacaggttac ctaatgggtg acggtgatc agctcttaac 660
 tttaaacctta tttataacct tgctgacttt gttaacaaga ttctatttgg tttaattata 720
 tggaatgctg ctgttaaaga atcttctaat gct 753

<210> 37
 <211> 251
 <212> PRT
 <213> Marine eubacteria

<400> 37

Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro
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Thr Phe Ala Ala Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly
 20 25 30

Val Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe
 35 40 45

Phe Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu
 50 55 60

Thr Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr
 65 70 75 80

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Met Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg
 85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr
 100 105 110

Leu Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys
 115 120 125

Leu Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu
 130 135 140

Ala Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala
 145 150 155 160

Trp Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala
 165 170 175

Cys Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met
 180 185 190

Tyr Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr
 195 200 205

Gly Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile
 210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile
 225 230 235 240

Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 38
 <211> 753
 <212> DNA
 <213> Marine eubacteria

<400> 38
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 gctttattag catctactgt atttttcttt gttgaaagag atagagttc tgcaaaatgg 180
 aaaacatcat taactgtatc tggcttggtt actggatttg ctttctggca ttacatgtat 240
 atgagagggg tatggattga aactgggtat tcgccaactg tatttagata catagattgg 300
 ttactaacag ttcccttatt aatatgtgaa ttctacttaa ttcttgccgc tgcaactaat 360
 gttgctggat cattatcaa gaaattactt gttgggtctc ttgttatgct tgtgtttgg 420

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atttatcctg taggttattt cacaggttac cttatgggtg acggtggtc agcacttaac	660
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tggaatgttgc ctgttaaaga atcttctaat gct	753

<210> 39
<211> 251
<212> PRT
<213> Marine eubacteria

<400> 39

Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro
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Thr Phe Ala Ala Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly
20 25 30

Val Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe
35 40 45

Phe Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu
50 55 60

Thr Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr
65 70 75 80

Met Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg
85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr
100 105 110

Leu Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys
115 120 125

Leu Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu
130 135 140

Ala Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Val Gly Cys Leu Ala
145 150 155 160

Trp Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala
165 170 175

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Cys Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met
180 185 190

Tyr Ile Ile Ile Val Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr
195 200 205

Gly Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile
210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile
225 230 235 240

Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 40
<211> 753
<212> DNA
<213> Marine eubacteria

<400> 40
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gctctattag cgtctactgt attttcttt gttgaaagag atagagttc tgcaaaatgg 180
aaaacatcat taactgtatc tggcttgtt actggatttg ctttctggca ttacatgtat 240
atgagaggag tatggattga aactggtgat tcgccaactg tattnagata cattgattgg 300
ttactaacag ttcccttatt aatatgtaa ttctacttaa ttcttgctgc tgcaactaat 360
gttgcggct cattattnaa gaaacttcta gttggttctc ttgttatgct tgggtttgg 420
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tggaaatgttg ctgttaaaga atcttctaat gct 753

<210> 41
<211> 252
<212> PRT
<213> Marine eubacteria

<400> 41

Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Ala Ile Ala Leu Pro
Page 34

Ser Phe Ala Ala Ala Gly Gly Asp Leu Asp Ile Ser Asp Thr Val Gly
20 25 30

Val Ser Phe Trp Leu Val Thr Ala Gly Met Leu Ala Ala Thr Val Phe
35 40 45

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
50 55 60

Thr Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr
65 70 75 80

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg
85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr
100 105 110

Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys
115 120 125

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
130 135 140

Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Leu Gly Met Ala Gly
145 150 155 160

Trp Leu Tyr Met Ile Tyr Glu Leu His Met Gly Glu Gly Lys Ala Ala
165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
180 185 190

Lys Ile Ile Val Ile Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
195 200 205

Gly Tyr Leu Met Ser Gly Asp Gly Val Tyr Ala Ser Asn Leu Asn Leu
210 215 220

Ile Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile
225 230 235 240

Ile Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

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<210> 42
 <211> 756
 <212> DNA
 <213> Marine eubacteria

<400> 42
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 ggtatgttag cgccaactgt attctttttt gtagaaagag accaagtca gctaaagtgg 180
 aaaacttcac ttactgtatc tggtttaatt actggtagat cttttggca ttatctctac 240
 atgagaggtg tttggataga tactggtgat acaccaacag tatttagata tattgattgg 300
 ctattaactg ttccattaca aatggttgag ttctatctaa ttcttgctgc ttgtacaagt 360
 gttgctgctt cattattaa gaagcttcta gctggttcat tagtaatgtt aggtgctgga 420
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 agtcctgctg ttaactctgc ttacaatgca atgatgaaga ttattgttat tggatggca 600
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 aacttaaacc ttatataaa ctttgctgac tttgttaaca agattcttatt tggttgatc 720
 atttggaaatg ttgctgttaa agaatcttct aatgct 756

<210> 43
 <211> 252
 <212> PRT
 <213> Marine eubacteria

<400> 43

Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Ala Ile Ala Leu Pro
 1 5 10 15

Ser Phe Ala Ala Ala Gly Gly Asp Leu Asp Ile Ser Asp Thr Val Gly
 20 25 30

Val Ser Phe Trp Leu Val Thr Ala Gly Met Leu Ala Ala Thr Val Phe
 35 40 45

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Glu Trp Lys Thr Ser Leu
 50 55 60

Thr Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr
 65 70 75 80

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg
 85 90 95

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Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr
 100 105 110

Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys
 115 120 125

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
 130 135 140

Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly
 145 150 155 160

Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala
 165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
 180 185 190

Met Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
 195 200 205

Gly Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu
 210 215 220

Ile Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile
 225 230 235 240

Ile Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 44
 <211> 756
 <212> DNA
 <213> Marine eubacteria

<400> 44		
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ggtatgttag cggcaactgt gttctttttt gtagaaagag accaagtca gctgagtg	180	
aaaacttcac ttactgtatc tggtttaatt actggtagat cttttggca ttatcttat	240	
atgagaggtg tttggataga tactggtgat accccaacag tattcagata tattgattgg	300	
ttattaactg ttccattaca aatggttgag ttctatctaa ttcttgctgc ttgtacaagt	360	
gttgctgctt cattatcaa gaagcttcta gctggttcat tagtaatgtt aggtgctgga	420	
tttgcaggcg aagctggatt agctcctgta ttacctgctt tcattattgg tatggctgga	480	

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atttatcctg	ctggatatgc	tgctggttac	ctaatgggtg	gcgaagggtgt	atacgcttca	660
aacttaaacc	ttatatataa	ccttgctgac	tttgttaaca	agattcttatt	tggtttgatc	720
atttggaatg	ttgctgttaa	agaatcttct	aatgct			756

<210> 45

<211> 252

<212> PRT

<213> Marine eubacteria

<400> 45

Thr	Met	Gly	Lys	Leu	Leu	Leu	Ile	Leu	Gly	Ser	Ala	Ile	Ala	Leu	Pro
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Ser	Phe	Ala	Ala	Ala	Gly	Gly	Asp	Leu	Asp	Ile	Ser	Asp	Thr	Val	Gly
					20			25					30		

Val	Ser	Phe	Trp	Leu	Val	Thr	Ala	Gly	Met	Leu	Ala	Ala	Thr	Val	Phe
					35			40					45		

Phe	Phe	Val	Glu	Arg	Asp	Gln	Val	Ser	Ala	Lys	Trp	Lys	Thr	Ser	Leu
					50			55			60				

Thr	Val	Ser	Gly	Leu	Ile	Thr	Gly	Ile	Ala	Phe	Trp	His	Tyr	Leu	Tyr
					65			70			75		80		

Met	Arg	Gly	Val	Trp	Ile	Asp	Thr	Gly	Asp	Thr	Pro	Thr	Val	Phe	Arg
					85			90					95		

Tyr	Ile	Asp	Trp	Leu	Leu	Thr	Val	Pro	Leu	Gln	Met	Val	Glu	Phe	Tyr
					100			105			110				

Leu	Ile	Leu	Ala	Ala	Cys	Thr	Asn	Val	Ala	Ala	Ser	Leu	Phe	Lys	Lys
					115			120			125				

Leu	Leu	Ala	Gly	Ser	Leu	Val	Met	Leu	Gly	Ala	Gly	Phe	Ala	Gly	Glu
					130			135						140	

Ala	Gly	Leu	Ala	Pro	Val	Trp	Pro	Ala	Phe	Ile	Ile	Gly	Met	Ala	Gly
					145			150			155		160		

Trp	Leu	Tyr	Met	Ile	Tyr	Glu	Leu	Tyr	Met	Gly	Glu	Gly	Lys	Ala	Ala
					165			170					175		

Val	Ser	Thr	Ala	Ser	Pro	Ala	Val	Asn	Ser	Ala	Tyr	Asn	Ala	Met	Met
														Page 38	

02716.0005.NPUS01.ST25.txt
 180 185 190

Met Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
 195 200 205

Gly Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu
 210 215 220

Ile Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile
 225 230 235 240

Ile Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 46
 <211> 756
 <212> DNA
 <213> Marine eubacteria

<400> 46
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 ggtatgttag cggcaactgt gttctttttt gtagaaagag accaagtcag cgctaagtgg 180
 aaaacttcac ttactgtatc tggtttaatt actggtagat cctttggca ttatctctat 240
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 aacctaaacc ttatataaa ccttgctgac tttgttaaca agattcttatt tggtttgatc 720
 atttggaaatg ttgctgttaa agaatcttct aatgct 756

<210> 47
 <211> 252
 <212> PRT
 <213> Marine eubacteria

<400> 47

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02716.0005.NPUS01.ST25.txt

Ser Phe Ala Ala Ala Gly Gly Asp Leu Asp Ile Ser Asp Thr Val Gly
 20 25 30

Val Ser Phe Trp Leu Val Thr Ala Gly Met Leu Ala Ala Thr Val Phe
 35 40 45

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
 50 55 60

Thr Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr
 65 70 75 80

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg
 85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr
 100 105 110

Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys
 115 120 125

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Ser Ala Gly Glu
 130 135 140

Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly
 145 150 155 160

Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala
 165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
 180 185 190

Met Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
 195 200 205

Gly Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu
 210 215 220

Ile Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile
 225 230 235 240

Ile Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 48
 <211> 756
 <212> DNA

<213> Marine eubacteria

<400> 48

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ggtatgttag cgccaactgt attctttttt gtagaaagag accaagttag cgctaagtgg	180
aaaacttcac ttactgtatc tggtaatttactgatag ctgtttggca ttatctctac	240
atgagaggtg tttggataga tactggtgat acaccaacag tatttagata tattgattgg	300
ttattaactg ttccattaca aatgggttag ttctatctaa ttcttgcgc ttgtacaagt	360
gttgctgctt cattattaa gaagcttcta gctggttcat tggtaatgtt aggtgctgga	420
tctgcaggcg aagctggatt agctcctgta ttacctgctt tcattattgg tatggctgga	480
tggttataca tgatttatga gctatatacg ggtgaaggta aggctgctgt aagtactgca	540
agtcctgctg ttaactctgc atacaacgca atgatgatga ttattgttgc tggatggca	600
atttatcctg ctggatatgc tgctggttac ctaatgggtg gcgaagggtgt atacgcttca	660
aacttaaacc tcatatataa ccttgctgac tttgttaaca agattctatt tggttgatc	720
atttggaaatg ttgctgttaa agaatcttct aatgct	756

<210> 49

<211> 252

<212> PRT

<213> Marine eubacteria

<400> 49

Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Ala Ile Ala Leu Pro			
1	5	10	15
Ser Phe Ala Ala Ala Gly Gly Asp Leu Asp Ile Ser Asp Thr Val Gly			
20	25	30	

Val Ser Phe Trp Leu Val Thr Ala Gly Met Leu Ala Ala Thr Val Phe			
35	40	45	

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu			
50	55	60	

Thr Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr			
65	70	75	80

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg			
85	90	95	

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr			
100	105	110	

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Leu Ile Leu Ala Ala Cys Thr Asn Val Ala Ala Ser Leu Phe Lys Lys
115 120 125

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
130 135 140

Ala Gly Leu Ala Pro Val Trp Pro Ala Phe Ile Ile Gly Met Ala Gly
145 150 155 160

Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala
165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
180 185 190

Val Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
195 200 205

Gly Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu
210 215 220

Ile Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile
225 230 235 240

Ile Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 50
<211> 756
<212> DNA
<213> Marine eubacteria

<400> 50
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gctgggtggcg atctagatat aagtgatact gttgggtgttt cattctggct ggttacagct 120
ggtagatgtt tagccaaactgt gttctttttt gtagaaagag accaagtca gctaaatgtgg 180
aaaacttcac ttactgttac tggtttaatt actggatatac cttttggca ttatctctat 240
atgagaggtg tttggataga cactgggtgat accccaacag tattcagata tattgattgg 300
ttatataactg ttccattaca aatgggtttagt ttctatctaa ttcttgctgc ttgtacaaat 360
gttgctgctt cattatcaa gaagcttcta gctgggtcat tagtaatgtt aggtgctgg 420
tttgcaggcg aagctggatt agctcctgta tggcctgctt tcattattgg tatggctgg 480
tggttataca tgatttatga gctatatacg ggtgaaggta aggctgctgt aagtactgca 540
agtcctgctg ttaactctgc atacaacgca atgatggtga ttattgttgc tggatggca 600

02716.0005.NPUS01.ST25.txt

atttatcctg ctggatatgc tgctggttac ctaatgggtg gcgaagggtgt atacgcttca	660
aacctaaacc ttatatataa ccttgctgac tttgttaaca agattctatt tggtttgc	720
atttggaatg ttgctgttaa agaatcttct aatgct	756

<210> 51
<211> 252
<212> PRT
<213> Marine eubacteria

<400> 51

Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Ala Ile Ala Leu Pro
1 5 10 15

Ser Phe Ala Ala Ala Gly Gly Asp Leu Asp Ile Ser Asp Thr Val Gly
20 25 30

Val Ser Phe Trp Leu Val Thr Ala Gly Met Leu Ala Ala Thr Val Phe
35 40 45

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
50 55 60

Thr Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr
65 70 75 80

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg
85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr
100 105 110

Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys
115 120 125

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
130 135 140

Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly
145 150 155 160

Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala
165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
180 185 190

02716.0005.NPUS01.ST25.txt

Met Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
 195 200 205

Gly Tyr Leu Met Gly Gly Glu Val Tyr Ala Ser Asn Leu Asn Leu
 210 215 220

Ile Tyr Asn Leu Ala Asp Leu Val Asn Lys Ile Leu Phe Gly Leu Ile
 225 230 235 240

Ile Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 52

<211> 756

<212> DNA

<213> Marine eubacteria

<400> 52

accatgggta aattattact gatatttagt agtgctattg cacttccatc atttgctgct 60

gctgggtggcg atctagatat aagtgatact gttgggtgtt cattctggct ggttacagct 120

ggtagatgttag cggcaactgt gttctttttt gtagaaagag accaagtca gctaaagtgg 180

aaaacttcac ttactgtatc tggtttaatt actggtagat cttttggca ttatctctat 240

atgagaggtg tttggataga cactggtgat accccaacag tattcagata tattgattgg 300

ttattaactg ttccattaca aatggtttag ttctatctaa ttcttgctgc ttgtacaagt 360

gttgcgtctt cattattaa gaagcttcta gctggttcat tagtaatgtt aggtgctgga 420

tttgcaggcg aagctggatt agctcctgta ttacctgctt tcattattgg tatggctgga 480

tggttataca tgatttatga gctatatatg ggtgaaggta aggctgctgt aagtactgca 540

agtcctgctg ttaactctgc atacaacgca atgatgatga ttattgtgt tggatggca 600

atttatcccg ctggatatgc tgctggttac ctaatgggtg gctaagggtgt atacgcttca 660

aacttaaacc ttatataaa ctttgctgac cttgttaaca agattctatt tggtttgatc 720

atttggaatg ttgctgttaa agaatcttct aatgct 756

<210> 53

<211> 252

<212> PRT

<213> Marine eubacteria

<400> 53

Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Ala Ile Ala Leu Pro
 1 5 10 15

Ser Phe Ala Ala Ala Gly Gly Asp Leu Asp Ile Ser Asp Thr Val Gly
 20 25 30

02716.0005.NPUS01.ST25.txt

Val Ser Phe Trp Leu Val Thr Ala Gly Met Leu Ala Ala Thr Val Phe
35 40 45

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
50 55 60

Thr Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr
65 70 75 80

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg
85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Val Val Glu Phe Tyr
100 105 110

Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys
115 120 125

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
130 135 140

Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly
145 150 155 160

Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala
165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Pro Ala Tyr Asn Ala Met Met
180 185 190

Met Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
195 200 205

Gly Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu
210 215 220

Ile Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile
225 230 235 240

Ile Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 54
<211> 756
<212> DNA
<213> Marine eubacteria

<400> 54

accatgggta aattattact gatattaggt agtgctattg cacttccatc atttgctgct	60
gctgggtggcg atctagatat aagtgatact gttgggtgtt cattctggct ggttacagct	120
ggtatgttag cgccaactgt gttctttttt gtagaaagag accaagtca tagtaatgtgg	180
aaaacttcac ttactgtatc tggtttaatt actggatag cttttggca ttatctctat	240
atgagaggtg tttggataga cactggatag accccaacag tattcagata tattgattgg	300
ttattaactg ttccattaca agtgggttag ttctatctaa ttcttgctgc ttgtacaagt	360
gttgcgtcctt cattattaa gaagcttcta gctgggtcat tagtaatgtt aggtgcgtgga	420
tttgcaggcg aagctggatt agctcctgta ttacctgctt tcattattgg tatggcgtgga	480
tggttataca tgatttatga gctatatacg ggtgaaggca aggctgctgt aagtactgca	540
agtcctgctg ttaaccctgc atacaacgca atgatgatga ttattgtgt tggatggca	600
atttatcctg ctggatatgc tgctggttac ctaatgggtg gcgaagggtgt atacgcttca	660
aacttaaacc ttatataaa ctttgctgac tttgttaaca agattcttatt tggtttgc	720
atttggaatg ttgctgttaa agaatcttct aatgct	756

<210> 55

<211> 252

<212> PRT

<213> Marine eubacteria

<400> 55

Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Ala Ile Ala Leu Pro	
1	5
	10
	15

Ser Phe Ala Ala Ala Gly Gly Asp Leu Asp Ile Ser Asp Thr Val Gly	
20	25
	30

val Ser Phe Trp Leu Val Thr Ala Gly Met Leu Ala Ala Thr Val Phe	
35	40
	45

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu	
50	55
	60

Thr Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr	
65	70
	75
	80

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg	
85	90
	95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr	
100	105
	110

Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys	
	Page 46

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
 130 135 140

Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly
 145 150 155 160

Trp Leu Tyr Met Ile Tyr Glu Leu His Met Gly Glu Gly Lys Ala Ala
 165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
 180 185 190

Lys Ile Ile Val Ile Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
 195 200 205

Gly Tyr Leu Met Ser Gly Asp Gly Val Tyr Ala Ser Asn Leu Asn Leu
 210 215 220

Ile Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile
 225 230 235 240

Ile Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 56

<211> 756

<212> DNA

<213> Marine eubacteria

<400> 56

accatgggta aattattact gatatttagt agtgctattg cacttccatc atttgctgct	60
gctgggtggcg atctagatat aagtgatact gttgggtgtt cattctggct ggttacagct	120
ggtagatgtt tagccaaactgtt attctttttt gtagaaagag accaagtca gcttaagtgg	180
aaaacttcac ttactgtatc tggtttaatt actggatatg ctttttggca ttatctctac	240
atgagaggtg tttggataga tactggatg acaccaacag tatttagata tattgattgg	300
ttattaaactg ttccattaca aatgggttag ttctatctaa ttcttgctgc ttgtacaagt	360
gttgctgctt cattattaa gaagcttcta gctggatcat tagtaatgtt aggtgctgga	420
tttgcaggcg aagctgggtt agctcctgta ttacctgctt tcattattgg tatggctgga	480
tggttataca tgatttatga gctacatatg ggtgaaggta aggctgctgt aagtactgca	540
agtcctgctg ttaactctgc atacaacgca atgatgaaga ttattgttat tggatggca	600
atttatcctg ctggatatgc tgctggttac ctaatgagtg gtgacggtgt atacgcttca	660

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aacttaaacc ttatatataa ccttgctgac tttgttaaca agattctatt tggtttgatc	720
atttggaatg ttgctgttaa agaatcttct aatgct	756

<210> 57
 <211> 252
 <212> PRT
 <213> Marine eubacteria

<400> 57

Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Ala Ile Ala Leu Pro
 1 5 10 15

Ser Phe Ala Ala Ala Gly Gly Asp Leu Asp Ile Ser Asp Thr Val Gly
 20 25 30

Val Ser Phe Trp Leu Val Thr Ala Gly Met Leu Ala Ala Thr Val Phe
 35 40 45

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
 50 55 60

Thr Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr
 65 70 75 80

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg
 85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr
 100 105 110

Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys
 115 120 125

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
 130 135 140

Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly
 145 150 155 160

Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala
 165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
 180 185 190

Met Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
 195 200 205

02716.0005.NPUS01.ST25.txt

Gly Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu
210 215 220

Ile Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile
225 230 235 240

Ile Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 58
<211> 756
<212> DNA
<213> Marine eubacteria

<400> 58
accatgggta aattattact gatatttagt agtgctattg cacttccatc atttgctgct 60
gctgggtggcg atctagatat aagtgatact gttgggtttt cattctggct gtttacagct 120
ggtatgttag cgccaactgt gttctttttt gtagaaagag accaagtcag cgctaagtgg 180
aaaacttcac ttactgtatc tggtttaatt actggatag ctttttggca ttatctctat 240
atgagaggtg tttggataga tactggtgat accccaacag tattcagata tattgattgg 300
ttattaactg ttccattaca aatggtttag ttctatctaa ttcttgctgc ttgtacaagt 360
gttgcgtgctt cattattaa gaagcttcta gctggttcat tagtaatgtt aggtgctgga 420
tttgcaggcg aagctggatt agctcctgtt ttacctgctt tcattattgg tatggctgga 480
tggctataca tgatttatga gctatatacg ggtgaaggta aggctgctgt aagtactgca 540
agtcctgctg ttaactctgc atacaacgca atgatgatga ttattgttgc tggatggca 600
atttatcctg ctggatatgc tgctggttac ctaatgggtg gcgaaggcgt atacgcttca 660
aacttaaacc ttatataaa ctttgctgac tttgttaaca agattcttatt tggtttgatc 720
atttggaatg ttgctgttaa agaatcttctt aatgct 756

<210> 59
<211> 250
<212> PRT
<213> Marine eubacteria

<400> 59

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
1 5 10 15

Phe Ala Ala Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
35 40 45

02716.0005.NPUS01.ST25.txt

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
180 185 190

Ile Ile Ile Val Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
225 230 235 240

Asn Val Ala Val Lys Lys Ser Ser Asn Ala
245 250

<210> 60

<211> 751

<212> DNA

<213> Marine eubacteria

<400> 60

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ggtggcgtac ttgatgctag tgactacact ggtgtttcat tctggtagt tactgctgct 120

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ctattagcgt ctactgtatt	180
cttctttgtt gaaagagata	
gagtgtctgc aaaaatggaaa	
acttcattaa cagtatctgg	240
tttagttact ggtattgctt	
tttggcatta tatgtacatg	
agaggtgtat ggatagaaac	300
tggtgattcg cctactgtct	
ttagatacat cgactggta	
ttaactgtgc cttaactaat	360
atgtgagttc tatctgatac	
ttgctgcagc tactaatgtt	
gctggttcat tatttaagaa	420
attgcttagtt gggtctttg	
tgatgcttgt gttgggttac	
atgggtgaag caggaataat	480
ggcagcttgg cctgcattca	
tcattggatg tttagcatgg	
gtatatatga tttatgaact	540
atgggcttgtt gaaggaaaat	
ctgcatgcaa tactgcaagt	
cctgctgtac agtcagctta	600
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tcatcgttgg ttgggcaatt	
tatcctgttag gttatttcac	660
agtttaccta atgggtgacg	
gtggatcagc tcttaatcta	
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tatttggttt aattatatgg	
aatgttgctg ttaaaaaatc	751
ttctaatgct a	

<210> 61
 <211> 250
 <212> PRT
 <213> Marine eubacteria

<400> 61

Met Gly Lys Leu Leu Leu Ile Leu Gly Asn Val Ile Ala Leu Pro Thr
 1 5 10 15

Phe Ala Ala Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
 65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
 100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

02716.0005.NPUS01.ST25.txt

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
 130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
 145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
 165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
 180 185 190

Ile Ile Ile Val Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
 195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
 210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
 225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 62
 <211> 751
 <212> DNA
 <213> Marine eubacteria

<400> 62
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 ggtggcgatc ttgatgctag tgactacact ggtgtttcat tctggtagt tactgctgct 120
 ctattagcgt ctactgtatt cttctttgtt gaaagagata gagtgctgc aaaatggaaa 180
 acttcattaa cagtatctgg tttagttact ggtattgctt tttggcatta tatgtacatg 240
 agaggtgtat ggtatagaaac tggtgattcg cctactgtct ttagatacat cgactggta 300
 ttaactgtgc cttaactaat atgtgagttc tatctgatac ttgctgcagc tactaatgtt 360
 gctggttcat tatttaagaa attgctagtt ggtctcttg ttagtgcgtt gttcggttac 420
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 cctgctgtac agtcagctt caacactatg atgtatatta tcattgttgg ttgggcgatt 600
 tattcctgttag gctatttcac tggcaccc atgggtgacg gtggatcagc tcttaattta 660
 aaccttattt ataaccttgc tgactttgtt aacaagattc tatttggttt aatttatatgg 720
 aatgttgctg ttaaaagaatc ttctaatgct a 751

02716.0005.NPUS01.ST25.txt

<210> 63
<211> 250
<212> PRT
<213> Marine eubacteria

<400> 63

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
1 5 10 15

Phe Ala Ala Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Ser Ser Pro Thr Val Phe Arg Tyr
85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
180 185 190

Ile Ile Ile Ala Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
210 215 220

02716.0005.NPUS01.ST25.txt

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 64
<211> 751
<212> DNA
<213> Marine eubacteria

<400> 64
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ctattagcat ctactgtatt cttcttgtt gaaagggata gagtatctgc aaaaatggaaa 180
acttcattaa cagtatctgg tttagttact ggtattgctt tttggcatta tatgtacatg 240
agaggtgtat ggatagaaac tggtagttca cctactgtct ttagatacat tgactggcta 300
ttaacagtgc cttactaat atgtgagttc tatttaatac ttgccgcagc tactaatgtt 360
gctggttcat tatttaagaa attgctagtt ggttcttgc tgatgcttgt gttggttac 420
atgggtgaag caggaataat ggcagctgg cctgcattca tcattggatg tttagcatgg 480
gtatatatga tttatgagct atgggctggt gaaggaaaat ctgcatgtaa tactgcaagt 540
cctgctgtac agtcagcttca caacacaatg atgtatatac tcattgcgtgg ttggcaatt 600
tatcctgttag gttatttcac aggttaccta atgggtgacg gtggatcagc tcttaatcta 660
aaccttattt ataaccttgc tgactttgtt aacaagattc tatttggttt aattatatgg 720
aatgttgctg ttaaagaatc ttctaatgct a 751

<210> 65
<211> 250
<212> PRT
<213> Marine eubacteria

<400> 65

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
1 5 10 15

Phe Ala Ala Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
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 50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
 65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
 100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
 130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
 145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
 165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
 180 185 190

Ile Ile Ile Val Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
 195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
 210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
 225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 66
 <211> 751
 <212> DNA
 <213> Marine eubacteria

<400> 66
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 ggtggcgtac ttgatgctag tgactacact ggtgtttcat tctggtagt tactgctgct 120
 ctattagcgt ctactgtatt cttctttgtt gaaagagata gagtgctgc aaaatggaaa 180

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ttaactgtgc cttaactaat	atgtgaggttc tatactgatac	ttgctgcagc tactaatgtt	360
gctggttcat tatttaagaa	attgcttagtt gggtctcttg	tgatgcttgt gttggttac	420
atgggtgaag caggaataat	ggcagcttgg cctgcattca	tcattggatg ttttagcatgg	480
gtatatatga tttatgaact	atgggcttgtt gaaggaaaat	ctgcatgcaa tactgcaagt	540
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tatcctgttag gttatccac	aggttaccta atgggtgacg	gtggatcagc tcttaatcta	660
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aatgttgctg ttaaagaatc	ttctaattgtc a		751

<210> 67

<211> 250

<212> PRT

<213> Marine eubacteria

<400> 67

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
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Phe Ala Ala Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
 65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Ser Ser Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
 100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
 130 135 140

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Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
145 150 155 160

val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
180 185 190

Ile Ile Ile Ala Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Asn Tyr
210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 68

<211> 751

<212> DNA

<213> Marine eubacteria

<400> 68

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ctattagcgt ctactgtatt cttctttgtt gaaagagata gagtgctgc aaaaatggaaa 180
acttcattaa cagtatctgg tttagttact ggtattgctt tttggcatta tatgtacatg 240
agaggtgtat ggatagaaac tggtagttca cctactgtct ttagatacat tgactggcta 300
ttaacagtgc cttaactaat atgtgagttc tatttaatac ttgccgcagc tactaatgtt 360
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tatcctgtat gttatccac aggttacca atgggtgacg gtggatcagc tcttaatcta 660
aaccttaatt ataaccttgc tgactttgtt aacaagattc tatttgggtt aattatatgg 720
aatgttgctg tttaaagaatc ttctaatgtc a 751

<210> 69

02716.0005.NPUS01.ST25.txt

<211> 250

<212> PRT

<213> Marine eubacteria

<400> 69

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
1 5 10 15

Phe Ala Ala Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
180 185 190

Ile Ile Ile Val Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
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225

230

235

240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 70
 <211> 751
 <212> DNA
 <213> Marine eubacteria

<400> 70
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 ctattagcgt ctactgtatt cttctttgtt gaaagagata gagtgctgc aaaatggaaa 180
 acttcattaa cagtatctgg tttagttact ggtattgctt tttggcatta tatgtacatg 240
 agaggtgtat ggtatgaaac tggtgattcg cctactgtct ttagatacat agactggta 300
 ttaactgtgc cttaactaat atgtgagttc tatctgatac ttgctgcagc tactaatgtt 360
 gctggttcat tatttaagaa attgctagtt ggtctcttg tgatgcttgc gttgggttac 420
 atgggtgaag caggaataat ggcagcttgg cctgcattca tcattggatg ttttagcatgg 480
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 aatgttgctg ttaaagaatc ttctaatgtc a 751

<210> 71
 <211> 250
 <212> PRT
 <213> Marine eubacteria

<400> 71

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
 1 5 10 15

Phe Ala Ala Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

02716.0005.NPUS01.ST25.txt

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
 65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Ser Ser Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
 100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
 130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
 145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
 165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
 180 185 190

Ile Ile Ile Val Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
 195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
 210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
 225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 72

<211> 751

<212> DNA

<213> Marine eubacteria

<400> 72

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ctattagcat ctactgtatt cttctttgtt gaaaggata gagtatctgc aaaatggaaa 180

acttcattaa cagtatctgg ttttagttact ggtattgctt ttggcatta tatgtacatg 240

agaggtgtat ggatagaaac tggtagttca cctactgtct ttagatacat tgactggcta 300

02716.0005.NPUS01.ST25.txt

ttaacagtgc	ctttactaat	atgtgagttc	tatthaatac	ttgccgcagc	tactaatgtt	360
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atgggtgaag	caggaataat	ggcagcttgg	cctgcattca	tcattggatg	tttagcatgg	480
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aaccttattt	ataaccttgc	tgactttgtt	aacaagattc	tatgggttt	aattatatgg	720
aatgttgctg	ttaaagaatc	ttctaatgct	a			751

<210> 73

<211> 250

<212> PRT

<213> Marine eubacteria

<400> 73

Met	Gly	Lys	Leu	Leu	Leu	Ile	Leu	Gly	Ser	Val	Ile	Ala	Leu	Pro	Thr
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														15	

Phe	Ala	Ala	Gly	Gly	Gly	Asp	Leu	Asp	Ala	Ser	Asp	Tyr	Thr	Gly	Val
														30	

Ser	Phe	Trp	Leu	Val	Thr	Ala	Ala	Leu	Leu	Ala	Ser	Thr	Val	Phe	Phe
														45	

Phe	Val	Glu	Arg	Asp	Arg	Val	Ser	Ala	Lys	Trp	Lys	Thr	Ser	Leu	Thr
														60	

Val	Ser	Gly	Leu	Val	Thr	Gly	Ile	Ala	Phe	Trp	His	Tyr	Met	Tyr	Met
														80	

Arg	Gly	Val	Trp	Ile	Glu	Thr	Gly	Asp	Ser	Pro	Thr	Val	Phe	Arg	Tyr
														95	

Ile	Asp	Trp	Leu	Leu	Thr	Val	Pro	Leu	Leu	Ile	Cys	Glu	Phe	Tyr	Leu
														110	

Ile	Leu	Ala	Ala	Ala	Thr	Asn	Val	Ala	Gly	Ser	Leu	Phe	Lys	Lys	Leu
														125	

Leu	Val	Gly	Ser	Leu	Val	Met	Leu	Val	Phe	Gly	Tyr	Met	Gly	Glu	Ala
														140	

Gly	Ile	Met	Ala	Ala	Trp	Pro	Ala	Phe	Ile	Ile	Gly	Cys	Leu	Ala	Trp
														160	

02716.0005.NPUS01.ST25.txt

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
180 185 190

Ile Ile Ile Phe Gly Trp Ala Ile Tyr Leu Val Gly Tyr Phe Thr Gly
195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 74

<211> 751

<212> DNA

<213> Marine eubacteria

<400> 74

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ctattagcat ctactgtatt tttctttgtt gaaagagaca gagtttctgc taaatggaaa 180
acatcattaa cagtatctgg tttagttact ggtattgctt tttggcatta catgtacatg 240
agaggtgtat ggattgaaac tggtgattca ccaactgttt ttagatacat cgactggttg 300
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gctggttctt tattcaagaa attactagtt ggttctcttg ttatgcttgt gttggttac 420
atgggtgaag caggaattat ggcagcctgg cctgcattca ttataggatg ttttagcatgg 480
gtatacatga tttatgaatt atgggctgga gaaggaaagt ctgcatgtaa cactgcaagt 540
cctgcagttc agtcagctta caacacaatg atgtatatac tcatacttg ttgggctatt 600
tacctttagt gttatttcac tggttaccta atgggtgacg gtggatcagc tcttaactta 660
aaccttatct ataaccttgc tgactttgtt aacaagattc tatttggttt aatttatatgg 720
aatgttgctg ttaaagaatc ttctaatgct a 751

<210> 75

<211> 250

<212> PRT

<213> Marine eubacteria

02716.0005.NPUS01.ST25.txt

<400> 75

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
1 5 10 15

Phe Ala Ala Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Ser Ser Pro Thr Val Phe Arg Tyr
85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
180 185 190

Ile Ile Ile Ala Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
225 230 235 240

02716.0005.NPUS01.ST25.txt

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 76
 <211> 751
 <212> DNA
 <213> Marine eubacteria

<400> 76
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 ctattagcat ctactgtatt cttcttgtt gaaagggata gagtatctgc aaaatggaaa 180
 acttcattaa cagtatctgg tttagttact ggtattgctt tttggcatta tatgtacatg 240
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 aatgttgctg ttaaagaatc ttctaatgct a 751

<210> 77
 <211> 250
 <212> PRT
 <213> Marine eubacteria

<400> 77

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
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Phe Ala Ala Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
 65 70 75 80

02716.0005.NPUS01.ST25.txt

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
 100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
 130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
 145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
 165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
 180 185 190

Ile Ile Ile Val Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
 195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
 210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
 225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 78
 <211> 751
 <212> DNA
 <213> Marine eubacteria

<400> 78		
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aatgttgctg ttaaagaatc ttctaatgct a 751

<210> 79
<211> 250
<212> PRT
<213> Marine eubacteria

<400> 79

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
1 5 10 15

Phe Ala Ala Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Ala
50 55 60

Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Cys Met Tyr Met
65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
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Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
 180 185 190

Ile Ile Val Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
 195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
 210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
 225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 80
 <211> 750
 <212> DNA
 <213> Marine eubacteria

<400> 80
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 ttattagcat ctactgtatt tttctttgtt gaaagagata gagttctgc aaaatggaaa 180
 acatcattag ctgtatctgg tcttattact ggtattgcgt tctggcattg catgtacatg 240
 agaggggtat ggattgaaac tggtgattcg ccaactgtat ttagatacat tgattggta 300
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 tattctgttag gttatccac aggttacctg atgggtgacg gtggatcagc tcttaactta 660
 aaccttatct ataaccttgc tgactttgtt aacaagattc tatttggttt aattatatgg 720
 aatgttgctg ttaaagaatc ttctaatgct 750

<210> 81
 <211> 250
 <212> PRT
 <213> Marine eubacteria

<400> 81

02716.0005.NPUS01.ST25.txt

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
 1 5 10 15

Phe Ala Ala Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Ser
 35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
 65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
 100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
 130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
 145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
 165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
 180 185 190

Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
 195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
 210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
 225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

02716.0005.NPUS01.ST25.txt

<210> 82
<211> 750
<212> DNA
<213> Marine eubacteria

<400> 82
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ggtgtgacc ttgatgctag tgattacact ggtgttctt tttggtagt tactgctgct 120
ttattagcat ctactgtatt ttccttgtt gaaagagata gagttctgc aaaatggaaa 180
acatcattaa ctgtatctgg tcatttact ggtattgctt tctggcatta catgtacatg 240
agaggggtat ggattgaaac tggtgattcg ccaactgtat ttagatacat tgattggta 300
ctaacagttc ctctattaaat atgtgaattc tacttaattc ttgctgctgc aactaatgtt 360
gctggatcat tatttaagaa attactagtt ggttctcttg ttatgcttgt gtttggttac 420
atgggtgaag caggaatcat ggctgcatgg cctgcattca ttattgggtg tttagcttgg 480
gtatacatga tttatgaatt atgggctgga gaaggaaaat ctgcatgtaa tactgcaagt 540
cctgctgtag aatcagctta caacacaatg atgtatatta tcattttgg ttgggcatt 600
tatcctgtac gttatccac aggttacctg atgggtgacg gtggatcagc tcttaactta 660
aaccttacatc ataaccttgc tgactttgtt aacaagattc tatttgggtt aattatatgg 720
aatgttgctg ttaaagaatc ttctaatgct 750

<210> 83
<211> 250
<212> PRT
<213> Marine eubacteria

<400> 83

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
1 5 10 15

Phe Ala Ala Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
50 55 60

Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
85 90 95

02716.0005.NPUS01.ST25.txt

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala.
130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
180 185 190

Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Ser Ile Ile Trp
225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 84
<211> 750
<212> DNA
<213> Marine eubacteria

<400> 84
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ggtgtgacc ttgatgctag tgattacact ggtgtttctt tttggtagt tactgctgct 120
ttattagcat ctactgtatt tttctttgtt gaaagagata gagttctgc aaaatggaaa 180
acatcattaa ctgtatctgg tcttattact ggtattgctt tctggcatta catgtacatg 240
agaggggtat ggattgaaac tggtgattcg ccaaccgtat ttagatacat tgattggta 300
ctaacagttc ctctattaat atgtgaattc tacttaattc ttgctgctgc aactaatgtt 360
gctggatcat tatttaagaa attactagtt gggtctcttg ttatgcttgt gtttggttac 420
atgggtgaag caggaatcat ggctgcatgg cctgcattca ttattgggtg tttagcttgg 480

02716.0005.NPUS01.ST25.txt

gtatacatga tttatgaatt atgggctgga gaaggaaaat ctgcatgtaa tactgcaagt	540
cctgctgtgc aatcagctta caacacaatg atgtatatta tcatcttgg ttgggcgatt	600
tatcctgtac gttatttcac aggttacctg atgggtgacg gtggatcagc acttaactta	660
aaccttatct ataaccttgc tgactttgtt aacaagattc tatttggttc aattatatgg	720
aatgttgctg ttaaagaatc ttctaatgct	750

<210> 85

<211> 250

<212> PRT

<213> Marine eubacteria

<400> 85

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
1 5 10 15

Phe Ala Ala Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
165 170 175

02716.0005.NPUS01.ST25.txt

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
 180 185 190

Ile Ile Ile Val Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
 195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
 210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
 225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 86
 <211> 751
 <212> DNA
 <213> Marine eubacteria

<400> 86
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 ggtggtgacc ttgatgctag tgattacact ggtgtttctt tttggtagt tactgctgct 120
 ttattagcgt ctactgtatt cttcttgtt gaaagagata gagtgctgc aaaaatggaaa 180
 acttcattaa cagtatctgg tttagttact ggtattgctt tttggcatta tatgtacatg 240
 agaggtgtat ggapagaaac tggtgattcg cctactgtct ttagatacat cgactggta 300
 ttaactgtgc cttactaat atgtgagttc tatctgatac ttgctgcagc tactaatgtt 360
 gctggttcat tatttaagaa attgctagtt ggttctctt tgatgcttgc gttggttac 420
 atgggtgaag caggaataat ggcagcttgg cctgcattca tcattgggtg tttagcatgg 480
 gtatatatga tttatgaact atgggctggt gaaggaaaat ctgcatgcaa tactgcaagt 540
 cctgctgtac agtcagctta caacacaatg atgtatatac tcattgttgg ttggcaata 600
 tattctgtac gttatccac aggttaccta atgggtgacg gtggatcagc tcttaatcta 660
 aaccttatct ataaccttgc tgactttgtt aacaagattc tatttggtt aattatatgg 720
 aatgttgctg ttaaagaatc ttctaatgtc a 751

<210> 87
 <211> 250
 <212> PRT
 <213> Marine eubacteria

<400> 87

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
 1 5 10 15

02716.0005.NPUS01.ST25.txt

Phe Ala Ala Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
180 185 190

Ile Ile Ile Val Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 88
<211> 751

02716.0005.NPUS01.ST25.txt

<212> DNA
 <213> Marine eubacteria

<400> 88
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 ggtggcgatc ttgatgctag tgactatact ggtgtttcat tctggtagt tactgctgct 120
 ctattagcgt ctactgtatt cttctttgtt gaaagagata gagtgctgc aaaatggaaa 180
 acttcattaa cagtatctgg tttagttact ggtattgctt tttggcatta tatgtacatg 240
 agagggtat ggatagaaac tggtgattcg cctactgtct ttagatacat cgactggta 300
 ttaactgtgc cttaactaat atgtgagttc tatactgatac ttgctgcagc tactaatgtt 360
 gctggttcat tatttaagaa attgctagtt ggttctcttg tgatgcttgt gtttggttac 420
 atgggtgaag caggaataat ggcagcttgg cctgcattca tcattggatg tttagcatgg 480
 gtatatatga tttatgaact atgggcttgtt gaaggaaaat ctgcatgcaa tactgcaagt 540
 cctgctgtac agtcagctta caacacaatg atgtatataca tcatcgttgg ttggcaatt 600
 tattcctgttag gctatttcac aggttaccta atgggtgacg gtggatcagc tcttaatcta 660
 aaccttattt ataaccttgc tgactttgtt aacaagattc tatttggttt aatttatatgg 720
 aatgttgctg ttaaagaatc ttctaatgct a 751

<210> 89
 <211> 250
 <212> PRT
 <213> Marine eubacteria

<400> 89

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
 1 5 10 15

Phe Ala Ala Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
 65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Pro Val Pro Leu Ala Ile Cys Glu Phe Tyr Leu
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100

105

110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
 130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
 145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
 165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
 180 185 190

Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
 195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
 210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
 225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 90
 <211> 751
 <212> DNA
 <213> Marine eubacteria

<400> 90
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 ggtggtgacc ttgatgctag tgattacact ggtgtttctt tttggtagt tactgctgct 120
 ttattagcat ctactgtatt tttctttgtt gaaagagata gagttctgc aaaatggaaa 180
 acatcattaa ctgtatctgg tcttgttact ggtattgctt tctggcatta catgtacatg 240
 agaggggtat ggattgaaac tggtgattcg ccaactgtat ttagatacat tgattggta 300
 ctaccagttc ctctagcaat atgtgaattc tacttaattc ttgctgctgc aactaatgtt 360
 gctggatcat tatttaagaa attactagtt ggttctcttg ttatgcttgc gtttggttac 420
 atgggtgaag caggaatcat ggctgcatgg cctgcattca ttattgggtg tttagcttgg 480
 gtatacatga tttatgaatt atgggctgga gaaggaaat ctgcattgtaa tactgcaagt 540

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cctgctgtgc aatcagctta caacacaatg atgtatatttttgc ttgggcgatt	600
tatcctgttag gttatccac aggttacccg atgggtgacg gtggatcagc tcttaactta	660
aaccttatct ataaccttgc tgactttgtt aacaagattc tatttggttt aatttatatgg	720
aatgttgctg tttaaagaatc ttctaatgct a	751

<210> 91

<211> 250

<212> PRT

<213> Marine eubacteria

<400> 91

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr			
1	5	10	15
10	15		

Phe Ala Ala Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val			
20	25	30	
30			

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe			
35	40	45	
45			

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr			
50	55	60	
60			

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met			
65	70	75	80
75	80		

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr			
85	90	95	
95			

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu			
100	105	110	
110			

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu			
115	120	125	
125			

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala			
130	135	140	
140			

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp			
145	150	155	160
155	160		

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys			
165	170	175	
175			

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr			
180	185	190	
190			

02716.0005.NPUS01.ST25.txt

Ile Ile Ile Phe Gly Trp Ala Ile Tyr Leu Val Gly Tyr Phe Thr Gly
195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 92

<211> 751

<212> DNA

<213> Marine eubacteria

<400> 92

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ggtggtgacc tggatgctag tgactacact ggtgtatctt tctggtagt tactgctgct 120
ctattagcat ctactgtatt tttctttgtt gaaagagaca gagtttctgc taaatggaaa 180
acatcattaa cagtatctgg tttagttact ggtattgctt tttggcatta catgtacatg 240
agaggtgtat ggattgaaac tggtgattca ccaactgttt ttagatacat cgactggttg 300
cttaactgtgc cttaactaat ttgtgagttc tacttaatac tagcagcagc tactaacgtt 360
gctggttctt tattcaagaa attactagtt ggttctcttg ttatgcttgt gttggttac 420
atgggtgaag caggaattat ggcagcctgg cctgcattca ttataggatg tttagcatgg 480
gtatacatga tttatgaatt atgggctgga gaaggaaagt ctgcatgtaa cactgcaagt 540
cctgcagttc agtcagctta caacacaatg atgtatatac tcatactttgg ttggctatt 600
tacctttagt gttatttcac tggttaccta atgggtgacg gtggatcagc tcttaactta 660
aaccttatct ataaccttgc tgactttgtt aacaagattc tatttggttt aattatatgg 720
aatgttgctg ttaaagaatc ttctaattgt a 751

<210> 93

<211> 250

<212> PRT

<213> Marine eubacteria

<400> 93

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
1 5 10 15

Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
20 25 30

02716.0005.NPUS01.ST25.txt

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Ser Ser Pro Thr Val Phe Arg Tyr
85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
180 185 190

Ile Ile Ile Phe Gly Trp Ala Ile Tyr Leu Val Gly Tyr Phe Thr Gly
195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 94
<211> 751
<212> DNA
<213> Marine eubacteria

02716.0005.NPUS01.ST25.txt

<400> 94
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ctattagcat ctactgtatt cttcttgtt gaaaggata gagtatctgc aaaatggaaa 180
acttcattaa cagtatctgg tttagttact ggtattgctt tttggcatta tatgtacatg 240
agaggtgtat ggatagaaac tggtagttca cctactgtct ttagatacat tgaactggcta 300
ttaacagtgc cttactaat atgtgaggtc tatttaatac ttgcccgcagc tactaatgtt 360
gctggttcat tatttaagaa attgcttagt ggttctctt ttagcgttgc gtttggttac 420
atgggtgaag caggaattat ggcagcctgg cctgcattca ttataggatg tttagcatgg 480
gtatacatga tttatgaatt atgggctgga gaaggaaagt ctgcgttca cactgcaagt 540
cctgcagttc agtcagctt caacacaatg atgtatatca tcatcttgg ttggcttatt 600
tacctttagt gttatccac tggttaccta atgggtgacg gtggatcagc tcttaactta 660
aaccttatct ataaccttgc tgactttgtt aacaagattc tatttggttt aatttatatgg 720
aatgttgctg ttaaagaatc ttctaatgct a 751

<210> 95

<211> 250

<212> PRT

<213> Marine eubacteria

<400> 95

Met Gly Lys Leu Leu Leu Arg Leu Gly Ser Val Ile Ala Leu Pro Thr
1 5 10 15

Phe Ala Ala Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
100 105 110

02716.0005.NPUS01.ST25.txt

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
 130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
 145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
 165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
 180 185 190

Ile Ile Ile Val Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
 195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
 210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
 225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 96

<211> 751

<212> DNA

<213> Marine eubacteria

<400> 96

atgggttaat tattactgag attaggtagt gttatcgcbc ttccaaacatt tgctgctggc 60

ggtggcgatc ttgatgctag tgactatact ggtgtttcat tctggtagt tactgctgct 120

ctattagcgt ctactgtatt cttctttgtt gaaagagata gagtgctgc aaaatggaaa 180

acttcattaa cagtatctgg tttagttact ggtattgctt tttggcatta tatgtacatg 240

agaggtgtat ggatagaaac tggtgattcg cctactgtct ttagatacat cgactggta 300

ttaactgtgc cttaactaat atgtgagttc tatctgatac ttgctgcagc tactaatgtt 360

gctggttcat tatttaagaa attgcttagtt ggttctcttg tgatgcttgt gttggttac 420

atgggtgaag caggaataat ggcagctgg cctgcattca tcattggatg tttagcatgg 480

gtatatatga tttatgaact atgggctggt gaaggaaaat ctgcatgcaa tactgcaagt 540

cctgctgtac agtcagctta caacacaatg atgtatataca tcattcgttgg ttggcaatt 600

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02716.0005.NPUS01.ST25.txt

aaccttattt ataaccttgc tgactttgtt aacaagattc tatttgggtt aattatatgg 720
aatgttgctg tttaaagaatc ttctaatgct a 751

<210> 97
<211> 250
<212> PRT
<213> Marine eubacteria

<400> 97

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
1 5 10 15

Phe Ala Ala Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Ala
50 55 60

Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
180 185 190

Ile Ile Ile Val Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
195 200 205

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Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 98
<211> 751
<212> DNA
<213> Marine eubacteria

<400> 98
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ttattagcat ctactgtatt tttctttgtt gaaagagata gagtttctgc aaaatggaaa 180
acatcattag ctgtatctgg tcttattact ggtattgcgt tctggcatta catgtacatg 240
agaggggtat ggattgaaac tggtgattcg ccaactgtat ttagatacat tgattggta 300
ctaacagttc ctctattaat atgtgaattc tacttaattc ttgctgctgc aactaatgtt 360
gctggatcat tatttaagaa attactagtt ggttctcttg ttatgcttgc gtttggttac 420
atgggtgaag caggaatcat ggctgcatgg cctgcattca ttattgggtg ttagcttgg 480
gtatacatga tttatgaatt atgggctgga gaaggaaaat ctgcatgtaa tactgcaagt 540
cctgctgatc agtcagctt caacacaatg atgtatata tcatcggttgg ttggcaata 600
tatcctgttag gttatttcac aggttaccta atgggtgacg gtggatcagc tcttaatcta 660
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aatgttgctg ttaaagaatc ttctaatgct a 751

<210> 99
<211> 250
<212> PRT
<213> Marine eubacteria
<400> 99

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
1 5 10 15

Phe Ala Ala Gly Gly Asp Pro Asp Ala Ser Asp Tyr Thr Gly Val
20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
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35

40

45

Phe Val Glu Arg Asp Arg Val Ser Ala Glu Trp Lys Thr Ser Leu Thr
 50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
 65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Glu Ile Cys Glu Phe Tyr Leu
 100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
 130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
 145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
 165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
 180 185 190

Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
 195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
 210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Ile Gly Leu Ile Ile Trp
 225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 100
 <211> 751
 <212> DNA
 <213> Marine eubacteria

<400> 100
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<210> 101

<211> 250

<212> PRT

<213> Marine eubacteria

<400> 101

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
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Phe Ala Ala Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
 65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Val Ile Cys Glu Phe Tyr Leu
 100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

02716.0005.NPUS01.ST25.txt

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
180 185 190

Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
195 200 205

Tyr Leu Met Gly Asp Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 102

<211> 751

<212> DNA

<213> Marine eubacteria

<400> 102

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gctggatcat	tatttaagaa	attactagtt	ggttctcttg	ttatgcttgt	gttggttac	420
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gtatacatga	tttatgaatt	atgggctgga	gaaggaaaat	ctgcatgtaa	tactgcaagt	540
cctgctgtgc	aatcagctta	caacacgatg	atgtatatta	tcatcttgg	ttgggcgatt	600
tatcctgttag	gttatttcac	agttacctg	atgggtgacg	gtggatcagc	tcttaactta	660
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751

<210> 103

<211> 250

<212> PRT

<213> Marine eubacteria

<400> 103

Met	Gly	Lys	Leu	Leu	Leu	Ile	Leu	Gly	Ser	Val	Ile	Ala	Leu	Pro	Thr
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			5					10						15	

Phe	Ala	Ala	Gly	Gly	Gly	Asp	Leu	Asp	Ala	Ser	Asp	Tyr	Thr	Gly	Val
			20					25					30		

Ser	Phe	Trp	Leu	Val	Thr	Ala	Ala	Leu	Leu	Ala	Ser	Thr	Val	Phe	Phe
													45		
			35				40								

Phe	Val	Glu	Arg	Asp	Arg	Val	Ser	Ala	Lys	Trp	Lys	Thr	Ser	Leu	Thr
	50			55						60					

Val	Pro	Gly	Leu	Ile	Thr	Asp	Ile	Ala	Phe	Trp	His	Tyr	Met	Tyr	Met
													80		
	65			70					75						

Arg	Gly	Val	Trp	Ile	Glu	Thr	Gly	Asp	Ser	Pro	Thr	Val	Phe	Arg	Tyr
													95		
	85				90										

Ile	Asp	Trp	Leu	Leu	Thr	Val	Pro	Leu	Gln	Ile	Cys	Glu	Phe	Tyr	Leu
	100						105						110		

Ile	Leu	Ala	Ala	Ala	Thr	Asn	Val	Ala	Gly	Ser	Leu	Phe	Lys	Lys	Leu
	115				120						125				

Leu	Val	Gly	Ser	Leu	Val	Met	Leu	Val	Phe	Gly	Tyr	Met	Gly	Glu	Ala
	130				135					140					

Gly	Ile	Met	Ala	Ala	Trp	Pro	Ala	Phe	Ile	Ile	Gly	Cys	Leu	Ala	Trp
	145				150				155					160	

Val	Tyr	Met	Ile	Tyr	Glu	Leu	Trp	Ala	Gly	Glu	Gly	Lys	Ser	Ala	Cys
	165						170						175		

Asn	Thr	Ala	Ser	Pro	Ala	Val	Gln	Ser	Ala	Tyr	Asn	Thr	Met	Met	Tyr
	180						185				190				

Ile	Ile	Ile	Phe	Gly	Trp	Ala	Ile	Tyr	Pro	Val	Gly	Tyr	Phe	Thr	Gly
	195						200				205				

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
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210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 104
<211> 751
<212> DNA
<213> Marine eubacteria

<400> 104
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ttattagcat ctactgtatt tttctttgtt gaaagagata gagtttctgc aaaatggaaa 180
acatcattaa ctgtacctgg tcatttact gatattgctt tctggcatta catgtacatg 240
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ctaacagttc ctctacaaat atgtgaattc tacttaattc ttgctgctgc aactaatgtt 360
gctggatcat tatttaagaa attactagtt ggttctcttg ttatgcttgc gtttggttac 420
atgggtgaag caggaatcat ggctgcatgg cctgcattca ttattgggtg tttagcttgg 480
gtatacatga tttatgaatt atgggctgga gaaggaaat ctgcatgtaa tactgcgagt 540
cctgctgtgc aatcagctta caacacaatg atgtatatta tcattttgg ttgggcgatt 600
tatcctgttag gttatttcac aggttacctg atgggtgacg gtggatcagc tcattactta 660
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aatgttgctg ttaaagaatc ttctaatgct a 751

<210> 105
<211> 249
<212> PRT
<213> Marine eubacteria

<400> 105

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
1 5 10 15

Phe Ala Ala Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
35 40 45

02716.0005.NPUS01.ST25.txt

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Pro Gly Leu Ile Thr Asp Ile Ala Phe Trp His Tyr Met Tyr Met
 65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Ile Cys Glu Phe Tyr Leu
 100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
 130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
 145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
 165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
 180 185 190

Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
 195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
 210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
 225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn
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<210> 106

<211> 748

<212> DNA

<213> Marine eubacteria

<400> 106

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ttattagcat ctactgtatt tttctttgtt gaaagagata gagttctgc aaaatggaaa 180

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acatcattaa	ctgtacctgg	tcttattact	gatattgctt	tctggcatta	catgtacatg	240
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ctaacagttc	ctctacaat	atgtgaattc	tacttaattc	ttgctgctgc	aactaatgtt	360
gctggatcat	tatttaagaa	attactagtt	ggttctcttg	ttatgcttgt	gttgggttac	420
atgggtgaag	caggaatcat	ggctgcatgg	cctgcattca	ttattgggtg	tttagcttgg	480
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aaccttatct	ataaccttgc	tgactttgtt	aacaagattc	tatgggttt	aattatatgg	720
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<210> 107

<211> 250

<212> PRT

<213> Marine eubacteria

<400> 107

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
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Phe Ala Ala Gly Gly Asp Leu Asp Ala Ser Gly Tyr Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Pro Gly Leu Ile Thr Asp Ile Ala Phe Trp His Tyr Met Tyr Met
 65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Ser Leu Gln Ile Cys Glu Phe Tyr Leu
 100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
 130 135 140

02716.0005.NPUS01.ST25.txt

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
180 185 190

Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 108

<211> 751

<212> DNA

<213> Marine eubacteria

<400> 108

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gtatacatga	tttatgaatt	atgggctgga	gaaggaaaat	ctgcatgtaa	tactgcgagt	540
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aaccttatct	ataaccttgc	tgactttgtt	aacaagattc	tatgggttt	aattatatgg	720
aatgttgctg	ttaaagaatc	ttctaatgct	a			751

02716.0005.NPUS01.ST25.txt

<210> 109

<211> 250

<212> PRT

<213> Marine eubacteria

<400> 109

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
1 5 10 15

Phe Ala Ala Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
50 55 60

Val Pro Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Ala Val Phe Arg Tyr
85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Glu Ile Cys Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
180 185 190

Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
195 200 205

Tyr Leu Met Gly Asp Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
210 215 220

02716.0005.NPUS01.ST25.txt

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 110
<211> 751
<212> DNA
<213> Marine eubacteria

<400> 110
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acatcattaa ctgtacctgg tcttggtaact ggtattgcct tctggcatta catgtacatg 240
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tatcctgttag gttatccac agttacctg atgggtgacg gtggatcagc tcttaactta 660
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aatgttgctg ttaaagaatc ttctaatgtc a 751

<210> 111
<211> 250
<212> PRT
<213> Marine eubacteria

<400> 111

Met Gly Lys Leu Leu Val Met Leu Gly Ser Val Ile Ala Leu Pro Thr
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Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
35 40 45

02716.0005.NPUS01.ST25.txt

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
180 185 190

Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 112

<211> 751

<212> DNA

<213> Marine eubacteria

<400> 112

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ctattagcat ctactgtatt tttctttgtt gaaagagaca gagtttctgc taaatggaaa 180

acatcattaa cagtatctgg ttttagttact ggtattgctt tttggcatta catgtacatg 240

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gctggttctt tattcaagaa attactagtt ggttctcttg ttatgcttgt gtttggttac 420
atgggtgaag caggaattat ggcagcctgg cctgcattca ttataggatg ttttagcatgg 480
gtatacatga tttatgaatt atgggctgga gaaggaaagt ctgcatactaa cactgcaagt 540
cctgcagttc agtcagctta caacacaatg atgtatatac tcatactttgg ttggctatt 600
taccctgttag gttatccac tggttaccta atgggtgacg gtggatcagc tcttaactta 660
aaccttatct ataaccttgc tgactttgtt aacaagattc tatttgggtt aattatatgg 720
aatgttgctg ttaaagaatc ttctaatgct a 751

<210> 113
<211> 250
<212> PRT
<213> Marine eubacteria

<400> 113

Met Gly Lys Arg Leu Val Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
1 5 10 15

Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
Page 94

145

150

155

160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
 165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
 180 185 190

Ile Ile Ile Phe Gly Trp Ala Ile Tyr Leu Val Gly Tyr Phe Thr Gly
 195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
 210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
 225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 114

<211> 751

<212> DNA

<213> Marine eubacteria

<400> 114

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 120
 ctattagcat ctactgtatt tttctttgtt gaaagagaca gagtttctgc taaatggaaa
 180
 acatcattaa cagtatctgg ttttagttact ggtattgctt tttggcatta catgtacatg
 240
 agaggtgtat ggattgaaac tggtgattca ccaactgttt ttagatacat cgactggttg
 300
 ctaactgtgc cttaactaat ttgtgagttc tacttaatac tagcagcagc tactaacgtt
 360
 gctggttctt tattcaagaa attactagtt ggttctcttg ttatgcttgt gttggttac
 420
 atgggtgaag caggaattat ggcagcctgg cctgcattca ttataggatg tttagcatgg
 480
 gtatacatga tttatgaatt atgggctgga gaaggaaagt ctgcatgtaa cactgcaagt
 540
 cctgcagttc agtcagctt caacacaatg atgtatatac tcatacttgg ttggcatt
 600
 tacctttagt gttatttcac tggttacca atgggtgacg gtggatcagc tcttaactta
 660
 aaccttatct ataaccttgc tgactttgtt aacaagattc tatttggttt aattatatgg
 720
 aatgttgctg ttaaagaatc ttctaatgtc a
 751

<210> 115

<211> 250

<212> PRT

02716.0005.NPUS01.ST25.txt

<213> Marine eubacteria

<400> 115

Met Gly Lys Ala Leu Leu Met Leu Gly Ser Val Ile Ala Leu Pro Thr
 1 5 10 15

Phe Ala Ala Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Pro Leu Ala Ser Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
 65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
 100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
 130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
 145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
 165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
 180 185 190

Ile Ile Ile Phe Gly Trp Ala Ile Tyr Leu Val Gly Tyr Phe Thr Gly
 195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
 210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Arg
 225 230 235 240

02716.0005.NPUS01.ST25.txt

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 116
<211> 751
<212> DNA
<213> Marine eubacteria

<400> 116
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ccattagcat ctactgtatt tttctttgtt gaaagagaca gagttctgc taaatggaaa 180
acatcattaa cagtatctgg ttttagttact ggtattgctt ttggcatta catgtacatg 240
agaggtgtat ggattgaaac tggtgattca ccaactgttt ttagatacat cgactggttg 300
ctaactgtgc cttactaat ttgtgagttc tacttaatac tagcagcagc tactaacgtt 360
gctggttctt tattcaagaa attactagtt ggttctcttg ttatgcttgt gttggttac 420
atgggtgaag caggaattat ggcagcctgg cctgcattca ttataggatg tttagcatgg 480
gtatacatga tttatgaatt atgggctgga gaaggaaagt ctgcatgtaa cactgcaagt 540
cctgcagttc agtcagctt caacacaatg atgtatatac tcatacttgg ttggctatt 600
tacttgttag gttatccac tggttaccta atgggtgacg gtggatcagc tcttaactta 660
aaccttatct ataaccttgc tgactttgtt aacaagattc tatttggttt aattataagg 720
aatgttgctg ttaaagaatc ttctaatgct a 751

<210> 117
<211> 250
<212> PRT
<213> Marine eubacteria

<400> 117

Met Gly Lys Gly Leu Leu Met Leu Gly Ser Val Ile Ala Leu Pro Ser
1 5 10 15

Phe Ala Ala Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
35 40 45

Phe Val Glu Arg Asp Arg Val Ala Ala Lys Trp Lys Thr Ser Leu Thr
50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
65 70 75 80

02716.0005.NPUS01.ST25.txt

Arg Gly Val Trp Val Glu Thr Gly Glu Ser Pro Thr Val Phe Arg Tyr
85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Ile Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
145 150 155 160

Phe Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
180 185 190

Ile Ile Ile Ile Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
225 230 235 240

His Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 118

<211> 751

<212> DNA

<213> Marine eubacteria

<400> 118

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ggtggcgatc ttgatgctag tgactataca ggtgttcat tctgggttgt tactgctgca 120

ttattagcct caactgtttt cttctttgtt gaaagagaca gagttgctgc aaaatggaaa 180

acatcgtaa cagtatctgg tcttgttact ggtattgctt tttggcatta catgtacatg 240

agaggggttt ggtagagac tggtaatca ccaactgtat tcagatataat tgactggcta 300

ctaacagtac cattattaat atgtgagttc tacttaatac ttgcagctgc aactaatgtt 360

02716.0005.NPUS01.ST25.txt

gctggttctt tatttaaaaa gctattaatt gggtctttt gttatgttgc gtttggttac 420
atgggtgaag caggaatcat ggcagcttgg cctgcattca ttattgggtg cttagcttgg 480
ttctacatga tttatgaact atgggcttgc gaaggaaagt ctgcttgcata tactgcaagt 540
ccagctgttc aatcagcata caacacgatg atgtatatta ttatcattgg ttgggctatt 600
taccctgttag gttactttac tggttaccta atgggtgacg gcggatctgc cttaaactta 660
aacctaattt ataaccttgc tgacttcgtt aacaagattc tatttggttt aattatctgg 720
catgttgcgtg ttaaagaatc ttctaattgt a 751

<210> 119
<211> 250
<212> PRT
<213> Marine eubacteria
<400> 119

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Ser
1 5 10 15

Phe Ala Ala Gly Gly Asp Leu Asp Ala Gly Asp Tyr Thr Gly Val
20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
35 40 45

Phe Ile Glu Arg Asp Arg Val Ala Ala Lys Trp Lys Thr Ser Leu Thr
50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
65 70 75 80

Arg Gly Val Trp Val Glu Thr Gly Glu Ser Pro Thr Val Phe Arg Tyr
85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Val Gly Cys Leu Ala Trp
145 150 155 160

02716.0005.NPUS01.ST25.txt

Phe Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
 165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
 180 185 190

Ile Ile Ile Ile Gly Trp Ala Ile Tyr Pro Leu Gly Tyr Phe Thr Gly
 195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
 210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
 225 230 235 240

His Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 120

<211> 751

<212> DNA

<213> Marine eubacteria

<400> 120

atgggttaat	tattattgtat	cttaggtat	gttattgcgc	ttccttcatt	tgcagctgg	60
ggcggcgacc	ttgatgctgg	tgattacact	ggtgttagtt	tttggtagt	gactgcagct	120
cttttggctt	caactgtatt	tttcttatt	gaaagagata	gagttgctgc	taaatggaag	180
acatcttaa	cagtatctgg	tctagttact	ggtattgctt	tctggcatta	catgtacatg	240
agaggtgttt	gggtcgaaac	tggtgaatca	ccaactgtat	tcagatata	tgactggcta	300
cttacagtgc	ctttatataat	atgtgagttt	tatctgattc	ttgcagctgc	aactaatgtt	360
gctggttctt	tatthaagaa	gcttttagtt	ggttcttttg	taatgcttgt	atttggttat	420
atgggcgaag	caggaattat	ggcagcttgg	cctgcattca	ttgttggatg	tttagcttgg	480
ttctatatga	tttatgagct	atgggcttgg	gaaggaaaat	ctgcatgcaa	tactgcaagt	540
ccagctgttc	aatcagcata	caacacaatg	atgtatatta	ttatcattgg	ttgggctatt	600
tatcctcttg	ggtactttac	tggttaccta	atgggtgacg	gcggatcagc	cttaaactta	660
aacctaattt	ataaccttgc	tgactttgtt	aacaagattc	tatgggttt	aatcatatgg	720
catgtcgctg	ttaaagaatc	ttctaattgt	a			751

<210> 121

<211> 250

<212> PRT

<213> Marine eubacteria

<400> 121

02716.0005.NPUS01.ST25.txt

Met Gly Lys Gln Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Ser
1 5 10 15

Phe Ala Ala Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
35 40 45

Phe Ile Glu Arg Asp Arg Val Ala Ala Lys Trp Lys Thr Ser Leu Thr
50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr Met
65 70 75 80

Arg Gly Val Trp Val Glu Thr Gly Glu Ser Pro Thr Val Phe Arg Tyr
85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Ile Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
180 185 190

Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
225 230 235 240

His Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

02716.0005.NPUS01.ST25.txt

<210> 122
<211> 751
<212> DNA
<213> Marine eubacteria

<400> 122
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ggtggcgatc ttgatgctag tgactataca ggtgtttcat tctggtagt tactgctgca 120
ttattagcct caactgtttt ctttttatt gaaagagaca gagttgctgc aaaatggaaa 180
acgtcgtaa cagtatctgg ccttggtaact ggtattgctt tttggcacta cttgtatatg 240
agaggagttt gggtagagac tggtaatca ccaactgtat tcagatataat tgactggta 300
ctaacagtac cattattaat atgtgagttt tacttaatac ttgcagctgc aactaatgtt 360
gctggttctt tatttaaaaa gctattaatt ggttctcttg tgatgcttgt gttggttac 420
atgggtgaag caggaatcat ggcggcttgg cctgcattca ttattgggtg cttagcttgg 480
gtctatatga tatatgagct atgggcttgtt gaaggaaaat ctgcataatg tactgcaagt 540
ccagctgttc aatcagcata caacacaatg atgtatatta ttatcttgg ttggctatt 600
taccctgttag gttactttac tggttaccta atgggtgacg gcggatctgc cttaaactta 660
aaccttatct ataaccttgc tgacttcgtt aacaagattc tatttggttt aattatctgg 720
catgttgctg tttaaagaatc ttctaatgct a 751

<210> 123
<211> 250
<212> PRT
<213> Marine eubacteria

<400> 123

Met Gly Lys Leu Leu Met Met Leu Gly Ser Val Ile Ala Leu Pro Ser
1 5 10 15

Phe Ala Ala Ser Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
20 25 30

Ser Phe Gly Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr Met
65 70 75 80

Arg Gly Val Trp Val Glu Thr Gly Glu Thr Pro Thr Val Phe Arg Tyr
Page 102

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
 100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
 130 135 140

Gly Ile Met Ala Ala Leu Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
 145 150 155 160

Ile Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
 165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
 180 185 190

Ile Ile Ile Phe Gly Trp Leu Ile Tyr Pro Val Gly Tyr Ala Ser Gly
 195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Met Asn Leu Asn Leu Ile Tyr
 210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
 225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 124

<211> 751

<212> DNA

<213> Marine eubacteria

<400> 124

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ggtggcgatt	tggatgctag	tgattacact	ggtgtttcat	ttgggttggt	gactgcagct	120
ttattagctt	caactgtatt	tttctttgtt	gaaagagata	gagtttctgc	taatggaag	180
acatcttga	cagtatcagg	tttagttact	ggtattgctt	tttggcatta	cttataatatg	240
agaggtgtat	gggttgaaac	tggtgaaact	ccaacagtat	ttagatatat	tgattggta	300
ttaactgttc	cattactaat	ctgcgagttt	tatttaattc	tagctgctgc	aactaacgta	360
gctggttcat	tatttaagaa	actacttg	ggttcacttg	taatgcttgt	gttggatac	420

02716.0005.NPUS01.ST25.txt

atgggtgaag caggaatcat ggcagcttg cctgcattca ttattgggtg ttggcatgg	480
atatatatga tttatgagct ttggcgttga gaaggaaat ctgcattcaa tactgcaagt	540
cctgccgttc aatcagctta caacaccatg atgtacatca tcattttgg ttggtaatc	600
tatccagttg gttatgcattc aggctatcta atggcgatg gcggatcagc tatgaactta	660
aacttaatat ataaccttgc tgactttgtt aacaagattc tatttggttt aattatctgg	720
aatgttgctg ttaaagaatc ttctaattgt a	751

<210> 125

<211> 258

<212> PRT

<213> Marine eubacteria

<400> 125

Met Gly Lys Gly Leu Leu Met Leu Gly Ser Val Ile Ala Leu Pro Ser			
1	5	10	15
10	15		

Phe Ala Ala Gly Gly Asn Leu Asn Ala Ala Asp Val Thr Gly Val			
20	25	30	
30			

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe			
35	40	45	
45			

Phe Ile Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr			
50	55	60	
60			

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr Met			
65	70	75	80
75	80		

Arg Gly Val Trp Val Asp Ser Trp Asn Pro Glu Thr Gly Met Gly Glu			
85	90	95	
95			

Ser Pro Thr Glu Phe Arg Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu			
100	105	110	
110			

Leu Ile Cys Glu Phe Tyr Leu Ile Leu Ala Ala Ala Thr Asn Val Ala			
115	120	125	
125			

Gly Ser Leu Phe Lys Lys Leu Leu Val Gly Ser Leu Val Met Leu Ile			
130	135	140	
140			

Ala Gly Tyr Met Gly Glu Ser Gly Asn Ala Asn Val Met Ile Ala Phe			
145	150	155	160
155	160		

Val Val Gly Cys Leu Ala Trp Leu Tyr Met Ile Tyr Glu Leu Trp Ala			
165	170	175	
175			

02716.0005.NPUS01.ST25.txt

Gly Glu Gly Lys Ala Ala Cys Asn Thr Ala Ser Pro Ala Val Gln Ser
180 185 190

Ala Tyr Asn Thr Met Met Trp Ile Ile Ile Val Gly Trp Ala Ile Tyr
195 200 205

Pro Ala Gly Tyr Ala Ala Gly Tyr Leu Met Gly Gly Glu Ser Val Tyr
210 215 220

Ala Ser Asn Leu Asn Leu Ile Tyr Asn Leu Ala Asp Phe Val Asn Lys
225 230 235 240

Ile Leu Phe Gly Leu Ile Ile Trp His Val Ala Val Lys Glu Ser Ser
245 250 255

Asn Ala

<210> 126

<211> 775

<212> DNA

<213> Marine eubacteria

<400> 126

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ttacttgctt caacagtatt ctttttattt gaaagagata gagtttctgc aaaatggaag 180
acatcactaa cagtatctgg ttttagttact ggtattgctt tttggcattt cctttacatg 240
agaggtgttt gggttgattc ttggaaatcct gaaacaggaa tgggagaatc tccaaactgaa 300
tttagatata ttgattggtt actaacagta cctttattaa tttgtgagtt ttatctaata 360
ttagctgctg caacaaatgt tgctggttca ttattcaaaa aattatttagt tggttcattg 420
gtcatgctt ttgcaggata catgggtgaa tctggtaatg ccaatgtgat gattgcattc 480
gtagttggat gcttagcatg gttgtatatg atatatgaat tgtgggctgg tgaaggtaaa 540
gcagcttgca atacagcaag ccctgctgtt caatcagcat acaatacaat gatgtggatc 600
attattttagt gttggctat atatcctgtt ggatatgctg ctggctattt gatgggtgga 660
gaaagcgttt atgcttctaa ccttaacctg atatataacc ttgctgactt tgtaacaag 720
attttattt gtttaatcat ttggcatgtt gctgttaag aatcttctaa tgcta 775

<210> 127

<211> 257

<212> PRT

<213> Marine eubacteria

02716.0005.NPUS01.ST25.txt

<400> 127

Met Gly Lys Leu Leu Val Met Leu Gly Ser Val Ile Ala Leu Pro Ser
1 5 10 15Phe Ala Ala Gly Gly Asn Leu Asp Ala Ala Asp Val Thr Gly Val
20 25 30Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
35 40 45Phe Ile Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
50 55 60Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr Met
65 70 75 80Arg Gly Val Trp Val Asp Ser Trp Thr Gly Pro Gly Thr Gly Glu Ser
85 90 95Pro Thr Glu Phe Arg Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu
100 105 110Ile Cys Glu Phe Tyr Leu Ile Leu Ala Ala Ala Thr Asn Val Ala Gly
115 120 125Ser Leu Phe Lys Lys Leu Leu Val Gly Ser Leu Val Met Leu Ile Ala
130 135 140Gly Tyr Met Gly Glu Ser Gly Asn Ala Asn Val Met Ile Ala Phe Val
145 150 155 160Val Gly Cys Leu Ala Trp Leu Tyr Met Ile Tyr Glu Leu Trp Ala Gly
165 170 175Glu Gly Lys Ala Ala Cys Asn Thr Ala Ser Pro Ala Val Gln Ser Ala
180 185 190Tyr Asn Thr Met Met Trp Ile Ile Val Gly Trp Ala Ile Tyr Pro
195 200 205Ala Gly Tyr Ala Ala Gly Tyr Leu Met Gly Glu Ser Val Tyr Ala
210 215 220Ser Asn Leu Asn Leu Ile Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile
225 230 235 240Leu Phe Gly Leu Ile Ile Trp His Val Ala Val Lys Glu Ser Ser Asn
Page 106

Ala

<210> 128
 <211> 772
 <212> DNA
 <213> Marine eubacteria

<400> 128
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 ggtgtatcgtt 60
 ggaggtaact tagatgcagc ttagtact ggtgtatcgtt ttggctgt tactgcggct
 ttacttgctt 120
 caacagtatt ctttttatt gaaagagata gagttctgc aaaatggaag
 acatcactaa cagtatctgg tttagttact ggtattgcattt tttggcattt cctttatatg
 agaggcggtt 180
 gggttgattt ttggactggtt ccaggaaccg gagaatctcc aactgaattt
 agatatattt 240
 attggttact aacagtacct ttatttttta gtgagttta tctaatttta
 gctgctgcaa 300
 caaatgttgc tggttcattt ttcaaaaaat tattgttgg ttcattggtc
 atgcttattt 420
 caggatacat gggtaatctt ggtatgcca atgtgtatgtatgat tgcatcgta
 gttggatgct 480
 tagcatggtt gtatatgata tatgaattt gggctggta aggtaaagca
 gcttgcaata 540
 cagcaagcccc tgctgttcaa tcagcataca atacaatgtatgat gtggatcatt
 attgttaggtt 600
 gggcttatata tcctgcttggat tatgctgctg gctatttgcattt gggtgagaa
 agcgtttatg 660
 cttctaacctt taacctgata tataaccttg ctgactttgtt taacaagatt
 ttatttggtt 720
 taatcatttgc gcatgttgcgtt gttaaagaat cttctaatgc ta 772

<210> 129
 <211> 249
 <212> PRT
 <213> Marine eubacteria

<400> 129

Met Gly Lys Leu Leu Val Met Leu Gly Gly Val Ile Ala Leu Pro Ser
 1 5 10 15

Phe Ala Ala Gly Gly Asp Leu Asp Ile Gly Asp Ser Val Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Met Leu Ala Ala Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

02716.0005.NPUS01.ST25.txt

Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr Met
 65 70 75 80

Arg Gly Val Trp Ile Asp Thr Gly Gly Ser Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr Leu
 100 105 110

Ile Leu Ala Ala Cys Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Val Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu Ala
 130 135 140

Gly Leu Ala Pro Ala Leu Pro Ala Phe Ile Leu Gly Met Ala Gly Trp
 145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala Val
 165 170 175

Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met Met
 180 185 190

Ile Ile Val Phe Gly Trp Ser Ile Tyr Pro Leu Gly Tyr Val Ala Gly
 195 200 205

Tyr Leu Met Gly Ala Val Asp Pro Ser Thr Leu Asn Leu Ile Tyr Asn
 210 215 220

Leu Ala Asp Phe Ile Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp His
 225 230 235 240

Val Ala Val Lys Glu Ser Ser Asn Ala
 245

{

<210> 130

<211> 748

<212> DNA

<213> Marine eubacteria

<400> 130

atgggttaat tattagtgtat gtttaggttgtt gttattgcac ttccttcttt tgctgctgggt 60

gggttgtatc tagatataagg agactccgtt ggagtttcat tctggcttgt tactgctgct 120

atgttagctg ctactgtttt ctttttgtt gaaagagacc aagtaagcgc aaagtggaaa 180

acatcattaa cagtatcagg tttattact ggtattgctt tttggcatta tctttacatg 240

agaggtgtat ggatagatac aggtggaagc ccaacagtat ttagatataat tgattggttg 300

02716.0005.NPUS01.ST25.txt

ctaacgttc cattacaat ggttgagttt tatttaattc ttgcagcttg tactaatgta	360
gctggttcat tatttaagaa actgcttgc ggttcattag taatgttagg tgctggattt	420
gctggtaag ctggactagc tcctgcattg cctgcttca tacttggtat ggctggatgg	480
gtatacatga tatatgagct gtatatgggt gaaggtaaag ctgcggtag tactgctagt	540
cctgccgtaa attctgctta caatgcaatg atgatgatta tagttttgg ttggcttatt	600
tatccactgg gatatgttgc tggctattta atgggtgcag tagatccaag tacattaaat	660
ctaatacaca accttgctga ttttattaa aagattttat tcggtttaat aatctggcat	720
gttgctgtta aagaatcttc taatgcta	748

<210> 131

<211> 249

<212> PRT

<213> Marine eubacteria

<400> 131

Met Gly Lys Leu Leu Met Ile Leu Gly Gly Val Ile Ala Leu Pro Ser
 1 5 10 15

Phe Ala Ala Gly Gly Gly Asp Leu Asp Ile Gly Asp Ser Val Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Met Leu Ala Ala Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr Met
 65 70 75 80

Arg Gly Val Trp Ile Asp Thr Gly Gly Ser Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr Leu
 100 105 110

Ile Leu Ala Ala Cys Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Val Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu Ala
 130 135 140

Gly Leu Ala Pro Ala Leu Pro Ala Phe Ile Leu Gly Met Ala Gly Trp
 145 150 155 160

02716.0005.NPUS01.ST25.txt

Val Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala Val
165 170 175

Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met Met
180 185 190

Ile Ile Val Phe Gly Trp Ser Ile Tyr Pro Leu Gly Tyr Val Ala Gly
195 200 205

Tyr Leu Met Gly Ala Val Asp Pro Ser Thr Leu Asn Leu Ile Tyr Asn
210 215 220

Leu Ala Asp Phe Ile Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp His
225 230 235 240

Val Ala Val Lys Glu Ser Ser Asn Ala
245

<210> 132

<211> 748

<212> DNA

<213> Marine eubacteria

<400> 132

atgggttaat	tattaatgtat	cttaggtgggt	gttattgcac	ttccttcttt	tgctgctgggt	60
gggtggatc	tagatataagg	agactctgtt	ggagtttcat	tctggcttgt	tactgctgct	120
atgttagctg	ctactgtttt	ctttttgtt	gaaagagacc	aagtaagcgc	aaagtggaaa	180
acatcattaa	cagtatcagg	ttaattact	ggtattgctt	tttggcatta	tcttacatg	240
agaggtgtat	ggatagatac	aggtggaagc	ccaacagtat	ttagatatat	tgattggttg	300
cttaactgttc	cattacaat	ggtgagttt	tatthaattc	ttgcagcttg	tactaatgtat	360
gctggttcat	tatthaagaa	actgcttgtt	ggtcattag	taatgttagg	tgctggattt	420
gctgggtgaag	ctggatttagc	tcctgcattg	cctgctttca	tacttggtat	ggctggatgg	480
gtatacatga	tatatacgct	gtatatgggt	gaaggtaaag	ctgcggtgag	tactgcttagt	540
cctgccgtaa	attctgctta	caatgcaatg	atgatgatta	tagttttgg	ttggtctatt	600
tatccactgg	gatatgttgc	tggctattta	atgggtgcag	tagatccaag	tacattaaat	660
ctaatacaca	accttgctga	ttttattaaat	aagattttat	tcggtttaat	aatctggcat	720
gttgctgtta	aagaatcttc	taatgcta				748

<210> 133

<211> 251

<212> PRT

<213> Marine eubacteria

02716.0005.NPUS01.ST25.txt

<400> 133

Met Gly Lys Leu Leu Met Ile Leu Gly Gly Val Ile Ala Leu Pro Ser
1 5 10 15

Phe Ala Ala Gly Gly Asp Leu Asp Ile Gly Asp Ser Val Gly Val
20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Met Leu Ala Ala Thr Val Phe Phe
35 40 45

Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
50 55 60

Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr Met
65 70 75 80

Arg Gly Val Trp Val Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Cys Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Ile Gly Ser Leu Val Met Leu Ile Gly Gly Phe Leu Gly Glu Ala
130 135 140

Gly Met Ile Asp Val Thr Leu Ala Phe Val Ile Gly Met Ala Gly Trp
145 150 155 160

Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala Val
165 170 175

Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met Leu
180 185 190

Ile Ile Val Val Gly Trp Ser Ile Tyr Pro Ala Gly Tyr Val Ala Gly
195 200 205

Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu Ile
210 215 220

Tyr Asn Leu Ala Asp Phe Ile Asn Lys Ile Leu Phe Gly Leu Ile Ile
225 230 235 240

02716.0005.NPUS01.ST25.txt

Trp His Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 134
 <211> 754
 <212> DNA
 <213> Marine eubacteria

<400> 134
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 ggtgggtgatc tagatataagg agactctgtt ggagtttcat tctggcttgt tactgctgct 120
 atgttagctg ctactgtttt ctttttgtt gaaagagacc aagtaagcgc aaaatggaaa 180
 acatcattaa cagtatcagg ttaataaca ggtattgctt tctggcacta ctgttatatg 240
 agaggggttt gggtagaaac aggcgattca ccaactgtat ttagatatat agattggctt 300
 ttaactgtac cactacaat ggtagagttt tatctgatat tagctgcatg taccaatgtt 360
 gctggatctt tatttaaaaa gctactaattc ggttcattgg ttagtggataggaggat 420
 ctaggtgaag ctggatgtat agatgtaaac ctagcttttgaatttggatgg 480
 ctatatatga tctatgagct atacatgggt gaaggtaaag ctgcggtagt tactgctagt 540
 cctgcccgtaa attctgctta caatgcaatg atgcttattt ttgttggatgg ttggtaatc 600
 tattctgctg gatatgttgc tggctatctt atggcggtg aaggagttata tgccctaaat 660
 ctaaacttaa tatataacct tgctgatattt atcaacaaga ttcttatttgg tttaattata 720
 tggcatgttg ctgttaaaga atcttctaat gcta 754

<210> 135
 <211> 251
 <212> PRT
 <213> Marine eubacteria

<400> 135

Met Gly Lys Gln Leu Leu Ile Leu Gly Gly Val Ile Ala Leu Pro Ser
 1 5 10 15

Phe Ala Ala Ser Gly Gly Asp Leu Asp Ser Ser Asp Leu Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ala Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr Met
 65 70 75 80

02716.0005.NPUS01.ST25.txt

Arg Gly Val Trp Ile Glu Thr Gly Glu Thr Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Met Val Glu Phe Tyr Leu
 100 105 110

Ile Leu Ala Ala Cys Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Gly Gly Ser Leu Val Met Leu Ile Ala Gly Tyr Met Gly Glu Ser
 130 135 140

Gly Ser Leu Pro Val Leu Pro Ala Phe Ile Val Gly Cys Leu Ala Trp
 145 150 155 160

Phe Tyr Met Ile Tyr Glu Leu Tyr Ala Gly Glu Gly Lys Ala Ala Val
 165 170 175

Thr Thr Ala Ser Pro Ala Val Met Ser Ala Tyr Asn Thr Met Met Leu
 180 185 190

Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala Gly
 195 200 205

Tyr Leu Met Gly Gly Asp Gly Val Tyr Ala Gln Asn Leu Asn Val Ile
 210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Val Ile
 225 230 235 240

Trp His Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 136

<211> 754

<212> DNA

<213> Marine eubacteria

<400> 136

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ggggggcgatc ttgattctag tgatcttact ggagtttctt tttggcttgt tactgctgct 120

ctcttagctg ctactgtttt ctttttgtt gaaagagatc aagtaagtgc taaatggaaa 180

acatcactta cagtttctgg ttttagttact ggtattgcat tctggcatta tctttatatg 240

agaggtgtgt ggatcgaaac tggtgaaacg ccaacagtat ttagatatat tgattggttg 300

cttaactgttc ctttgctaat gggtgagttc tacttaatcc ttgcagcgtg cacaatgtt 360

02716.0005.NPUS01.ST25.txt

gcgggttcat tatttaagaa actacttggt ggtcgccttg taatgcttat tgcaggatat	420
atgggtgagt ctggaagtct tccagtattg cctgcattca ttgttgggtg ctttagcatgg	480
ttctacatga tttatgaact atatgcttgtt gaaggtaagg ctgcagttac tactgctagt	540
cctgctgtta tgtctgcata caatactatg atgttggatta tcgttagtagg ttggcaatt	600
tacccagctg gatatgctgc tggttaccta atgggtggtg atggcgata tgctcagaat	660
ttaaacgtta tatataacct tgctgacttt gttaacaaga ttttatttgg ttttagttatc	720
tggcatgttg ctgttaaaga atcttcta at gcta	754

<210> 137

<211> 251

<212> PRT

<213> Marine eubacteria

<400> 137

Met Gly Lys Leu Leu Met Ile Leu Gly Gly Val Ile Ala Leu Pro Ser					
1	5		10		15
	10				
	15				

Phe Ala Ala Ser Gly Gly Asp Leu Asp Ser Ser Asp Leu Thr Gly Val			
20	25		30
	30		

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ala Thr Val Phe Phe			
35	40		45
	45		

Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu Thr			
50	55		60
	60		

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr Met					
65	70		75		80
	75		80		
	80				

Arg Gly Val Trp Ile Glu Thr Gly Glu Thr Pro Thr Val Phe Arg Tyr			
85	90		95
	95		

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Met Val Glu Phe Tyr Leu			
100	105		110
	110		

Ile Leu Ala Ala Cys Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu			
115	120		125
	125		

Leu Gly Gly Ser Leu Val Met Leu Ile Ala Gly Tyr Met Gly Glu Ser			
130	135		140
	140		

Gly Ser Leu Pro Val Leu Pro Ala Phe Ile Val Gly Cys Leu Ala Trp					
145	150		155		160
	155		160		
	160				

Phe Tyr Met Ile Tyr Glu Leu Tyr Ala Gly Glu Gly Lys Ala Ala Val	
	Page 114

Thr Thr Ala Ser Pro Ala Val Met Ser Ala Tyr Asn Thr Met Met Leu
 180 185 190

Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala Gly
 195 200 205

Tyr Leu Met Gly Gly Asp Gly Val Tyr Ala Gln Asn Leu Asn Val Ile
 210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Val Ile
 225 230 235 240

Trp His Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 138

<211> 754

<212> DNA

<213> Marine eubacteria

<400> 138

atgggttaat tattaaatgtat ctttaggttgt gtcatggcgc ttcccttcgtt tgctgcaagt	60
ggtggcgatc ttgattctag tgatcttact ggagtatctt tttggcttgt tactgctgct	120
ctcttagctg ctactgtttt cttttttgtt gaaagagatc aagtaagtgc taaatggaaa	180
acatcaactta cagtttctgg ttttagttact ggtattgcat tctggcatta tctctatatg	240
agaggtgtgt ggatcgaaac tggtgaaacg ccaacagtat ttagatatat tgattggttg	300
cttaactgttc cgttactaat ggttgagttc tacttaattc ttgcggcttg cacaatgtt	360
gcgggctcat tatttaagaa actactaggt ggttcgcttg taatgcttat tgcaggatat	420
atgggtgagt ctggaagtct tccagtattt cctgcattca ttgttggatg cctagcatgg	480
ttctacatga tttatgaact atatgcttgt gaaggtaagg ctgcagttac tactgcttagt	540
cctgctgtta tgtctgcata caatactatg atgttggatta tcgttagtagg ttggcaatt	600
tacccggctg gatatgctgc tggataccctaa atgggtggtg atggcgata tgctcagaat	660
ttaaacgtta tatataatct tgctgacttt gttaacaaga ttttatttgg ttttagttatc	720
tggcatgtcg ctgttaaaga atcttctaat gcta	754

<210> 139

<211> 251

<212> PRT

<213> Marine eubacteria

<400> 139

02716.0005.NPUS01.ST25.txt

Met Gly Lys Leu Leu Val Ile Leu Gly Gly Val Ile Ala Leu Pro Pro
 1 5 10 15

Phe Ala Ala Ser Gly Gly Asp Leu Asp Ser Ser Asp Leu Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ala Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr Met
 65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Glu Thr Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Met Val Glu Phe Tyr Leu
 100 105 110

Ile Leu Ala Ala Cys Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Gly Gly Ser Leu Val Met Leu Ile Ala Gly Tyr Met Gly Glu Ser
 130 135 140

Gly Ser Leu Pro Val Leu Pro Ala Phe Ile Val Gly Cys Leu Ala Trp
 145 150 155 160

Phe Tyr Met Ile Tyr Glu Leu Tyr Ala Gly Glu Gly Lys Ala Ala Val
 165 170 175

Thr Thr Ala Ser Pro Ala Val Met Ser Ala Tyr Asn Thr Met Met Leu
 180 185 190

Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala Gly
 195 200 205

Tyr Leu Met Gly Gly Asp Gly Val Tyr Ala Gln Asn Leu Asn Val Ile
 210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Val Ile
 225 230 235 240

Trp His Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

02716.0005.NPUS01.ST25.txt

<210> 140
<211> 754
<212> DNA
<213> Marine eubacteria

<400> 140
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ggtggcgatc ttgattctag tgatcttact ggagtatctt tttggcttgt tactgctgct 120
ctcttagctg ctactgttt ctttttgtt gaaagagatc aagtaagtgc taaatggaaa 180
acatcactta cagtttctgg tttagttact ggtattgcat tctggcatta tctctatatg 240
agaggtgtgt ggatcgaaac tggtaaaacg ccaacagtat ttagatatat tgattggttg 300
ctaactgttc cgttactaat ggttgaggttc tacttaattc ttgcagctt cacaatgtt 360
gcgggctcat tatttaagaa actactaggt ggttcgcttgaatgcttat tgcaaggat 420
atgggtgagt ctggaaagtct tccagtattt cctgcattca ttgttgatg cctagcatgg 480
ttctacatga tttatgaact atatgcttgtt gaaggtaagg ctgcagttac tactgctagt 540
cctgctgtta tgtctgcata caatactatg atgttggatta tcgttagttagg ttgggcaatt 600
tacccggctg gatatgctgc tggataccctt atgggtggtg atggcgatata tgctcagaat 660
ttaaacgtta tatataatct tgctgacttt gttaacaaga ttttatttgg tttagttatc 720
tggcatgtcg ctgttaaaga atcttctaat gcta 754

<210> 141
<211> 247
<212> PRT
<213> Marine eubacteria

<400> 141

Leu Leu Ile Leu Gly Gly Val Ile Ala Leu Pro Ser Phe Ala Ala Ser
1 5 10 15

Gly Gly Asp Leu Asp Ser Ser Asp Leu Thr Gly Val Ser Phe Trp Leu
20 25 30

Val Thr Ala Ala Leu Leu Ala Ala Thr Val Phe Phe Phe Val Glu Arg
35 40 45

Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu Thr Val Ser Gly Leu
50 55 60

Val Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr Met Arg Gly Val Trp
65 70 75 80

Ile Glu Thr Gly Glu Thr Pro Thr Val Phe Arg Tyr Ile Asp Trp Leu
85 90 95

02716.0005.NPUS01.ST25.txt

Leu Thr Val Pro Leu Leu Met Val Glu Phe Tyr Leu Ile Leu Ala Ala
100 105 110

Cys Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu Leu Gly Gly Ser
115 120 125

Leu Val Met Leu Ile Ala Gly Tyr Met Gly Glu Ser Gly Ser Leu Pro
130 135 140

Val Leu Pro Ala Phe Ile Val Gly Cys Leu Ala Trp Phe Tyr Met Ile
145 150 155 160

Tyr Glu Leu Tyr Ala Gly Glu Gly Lys Ala Ala Val Thr Thr Ala Ser
165 170 175

Pro Ala Val Met Ser Ala Tyr Asn Thr Met Met Leu Ile Ile Val Val
180 185 190

Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala Gly Tyr Leu Met Gly
195 200 205

Gly Asp Gly Val Tyr Ala Gln Asn Leu Asn Val Ile Tyr Asn Leu Ala
210 215 220

Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Val Ile Trp His Val Ala
225 230 235 240

Val Lys Glu Ser Ser Asn Ala
245

<210> 142
<211> 742
<212> DNA
<213> Marine eubacteria

<400> 142
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gattctatgtg atcttactgg agtttctttt tggcttggta ctgctgtct cttagctgct 120
actgtttctt tttttgttga aagagatcaa gtaagtgcta aatggaaaac atcacttaca 180
gtttctgggt tagttactgg tattgcattt ctttcattttt tttatatgag aggtgtgtgg 240
atcgaaaactg gtgaaacgccc aacagtattt agatatattt atgggttgct aactgttcctt 300
ttgctaatgg ttgagttcta cttaatccctt gcagcgtgca caaatgttgc gggttcatta 360
tttaagaaac tacttggtgg ttcgcttgta atgcttattt cagatataat gggtgagtct 420
ggaaagtcttc cagtattgcc tgcatttcattt gttgggtgct tagcatggtt ctacatgatt 480

02716.0005.NPUS01.ST25.txt

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tctgcataca atactatgtat	gttgattatc gtagtaggtt	gggcaattta cccagctgga	600
tatgctgctg gttaccta	at gggtggtgat ggcgtatatg	ctcagaattt aacgttata	660
tataaccttg ctgactttgt	taacaagatt ttatggtt	tagttatctg gcatgttgct	720
gttcaaagaat cttctaatgc ta			742

<210> 143

<211> 251

<212> PRT

<213> Marine eubacteria

<400> 143

Met Gly Lys Leu Leu Leu Ile Leu Gly Gly Val Ile Ala Leu Pro Ser
1 5 10 15

Phe Ala Ala Ser Gly Gly Asp Leu Asp Ser Ser Asp Leu Thr Gly Val
20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ala Thr Val Phe Phe
35 40 45

Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr Met
65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Glu Thr Pro Thr Val Phe Arg Tyr
85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Met Val Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Cys Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Ile Gly Ser Leu Val Met Leu Ile Ala Gly Tyr Met Gly Glu Ser
130 135 140

Gly Ser Leu Pro Val Leu Pro Ala Phe Leu Val Gly Cys Ala Ala Trp
145 150 155 160

Leu Tyr Met Ile Tyr Glu Leu Tyr Ala Gly Glu Gly Lys Ala Ala Val
165 170 175

02716.0005.NPUS01.ST25.txt

Thr Thr Ala Ser Pro Ala Val Met Ser Ala Tyr Asn Thr Met Met Leu
 180 185 190

Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala Gly
 195 200 205

Tyr Leu Met Gly Gly Asp Gly Val Tyr Ala Gln Asn Leu Asn Val Ile
 210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Val Ile
 225 230 235 240

Trp His Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 144

<211> 754

<212> DNA

<213> Marine eubacteria

<400> 144

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ctcttagctg	ctactgtttt	ctttttgtt	gaaagagatc	aagtaagcgc	taaatggaaa	180
acatcactta	cagtttctgg	tttagttact	ggtattgcat	tctggcatta	tctctatatg	240
agaggtgtgt	ggatcgaaac	cggtaaaca	ccaacagtat	ttagatatat	tgattggttg	300
cttaactgttc	cgttactaat	ggttgaggtc	tacttaatcc	tcgcagctt	cactaatgtt	360
gcaggttcat	tatttaagaa	actactaatt	ggtcgctt	taatgcttat	tgcaggatat	420
atgggtgagt	ctggaagtct	tccagtattt	cctgcattcc	ttgttgggt	cgcagcatgg	480
ttatacatga	tttatgaact	atatgcttgt	gaaggttaagg	ctgcagttac	tactgctagt	540
cctgctgtta	tgtctgcata	caatactatg	atgttgatta	tcgttagtagg	ttgggcaata	600
tacccagctg	gatatgctgc	tggttactta	atgggtggag	atggcgata	tgctcagaat	660
ttaaacgtta	tatataacct	tgctgacttt	gttaacaaga	ttttatttgg	tttagttatc	720
tggcatgttg	ctgttaaaga	atcttcta	atcttcta	gcta		754

<210> 145

<211> 250

<212> PRT

<213> Marine eubacteria

<400> 145

Met Gly Lys Leu Leu Leu Ile Leu Gly Gly Val Ile Ala Leu Pro Ser
 1 5 10 15

02716.0005.NPUS01.ST25.txt

Phe Ala Ala Ser Gly Gly Asp Leu Asp Ser Ser Asp Leu Thr Gly Val
20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ala Thr Val Phe Phe
35 40 45

Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr Met
65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Glu Thr Pro Thr Val Phe Arg Tyr
85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Met Val Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Cys Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Ile Gly Ser Leu Val Met Leu Ile Ala Gly Tyr Met Gly Glu Ser
130 135 140

Gly Ser Leu Pro Val Leu Pro Ala Phe Leu Val Gly Cys Ala Ala Trp
145 150 155 160

Leu Tyr Met Ile Tyr Glu Leu Tyr Ala Gly Glu Gly Lys Ala Ala Val
165 170 175

Thr Thr Ala Ser Pro Ala Val Met Ser Ala Tyr Asn Thr Met Met Leu
180 185 190

Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala Gly
195 200 205

Tyr Leu Met Gly Gly Asp Gly Val Tyr Ala Gln Asn Leu Asn Val Ile
210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Val Ile
225 230 235 240

Trp His Val Ala Val Lys Glu Ser Ser Asn
245 250

<210> 146
<211> 751

02716.0005.NPUS01.ST25.txt

<212> DNA
 <213> Marine eubacteria

<400> 146
 atgggtaaat tattattgat cttaggcggt gttattgcgc ttccttcgtt tgctgcaagt 60
 ggaggcgatc ttgattctag tgatcttact ggagtatctt tttggcttgt tactgctgct 120
 ctcttagctg ctactgtttt cttttttgtt gaaagagatc aagtaagcgc taaatggaaa 180
 acatcactta cagtttctgg ttttagttact ggtattgcat tctggcatta tctctatatg 240
 agaggtgtgt ggatcgaaac cggtgaaaca ccaacagtat ttaggtatat tgattggttg 300
 ctaactgttc cgttactaat gggtgagttc tacttaatcc tcgcagttg cactaatgtt 360
 gcaggttcat tatttaagaa actactaatt gggtcgcttg taatgcttat tgcaaggat 420
 atgggtgagt ctggaagtct tccagtattt cctgcattcc ttgttgggtg cgcaagcatgg 480
 ttatacatga tttatgaact atatgcttgtt gaaggtaagg ctgcagttac tactgcttagt 540
 cctgctgtta tgtctgcata caatactatg atgttattttt tcgttagtagg ttggcaata 600
 tacccagctg gatatgctgc tggttactta atgggtggag atggcgata tgctcagaat 660
 ttaaacgtta tatataacct tgctgacttt gttaacaaga ttttattttgg ttttagttatc 720
 tggcatgttg ctgttaaaga atcttctaat c 751

<210> 147
 <211> 251
 <212> PRT
 <213> Marine eubacteria

<400> 147

Met Gly Lys Leu Leu Leu Ile Leu Gly Gly Val Ile Ala Leu Pro Ser
 1 5 10 15

Phe Ala Ala Ser Gly Gly Asp Leu Asp Ser Ser Asp Leu Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ala Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr Met
 65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Glu Thr Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Met Val Glu Phe Tyr Leu
 Page 122

02716.0005.NPUS01.ST25.txt
 100 105 110

Ile Leu Ala Ala Cys Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Ile Gly Ser Leu Val Met Leu Ile Ala Gly Tyr Met Gly Glu Ser
 130 135 140

Gly Ser Leu Pro Val Leu Pro Ala Phe Leu Val Gly Cys Ala Ala Trp
 145 150 155 160

Leu Tyr Met Ile Tyr Glu Leu Tyr Ala Gly Glu Gly Lys Ala Ala Val
 165 170 175

Thr Thr Ala Ser Pro Ala Val Met Ser Ala Tyr Asn Thr Met Met Leu
 180 185 190

Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala Gly
 195 200 205

Tyr Leu Met Gly Gly Asp Gly Val Tyr Ala Gln Asn Leu Asn Val Ile
 210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Val Ile
 225 230 235 240

Trp His Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 148

<211> 754

<212> DNA

<213> Marine eubacteria

<400> 148

atgggttaat	tattactgat	cttaggcgtt	gttattgcgc	ttccttcgtt	tgctgcaagt	60
ggaggcgatc	ttgattctag	tgatctact	ggagtatctt	tttggcttgt	tactgctgct	120
ctcttagctg	ctactgtttt	ctttttgtt	gaaagagatc	aagtaagcgc	taaatggaaa	180
acatcactta	cagttctgg	tttagttact	ggtattgcat	tctggcatta	tctctatatg	240
agaggtgtgt	ggatcgaaac	cggtaaaca	ccaacagtat	ttagatatat	tgattggttg	300
cttaactgttc	cgttactaat	ggtgaggatc	tacttaatcc	tcgcagcttg	cactaatgtt	360
gcaggttcat	tatttaagaa	actactaatt	ggttcgcttg	taatgcttat	tgcaggatat	420
atgggtgagt	ctgaaagtct	tccagtattg	cctgcattcc	ttgttgggtg	cgcagcatgg	480
ttatacatga	tttatgaact	atatgctggt	gaaggtaagg	ctgcagttac	tactgcttagt	540

02716.0005.NPUS01.ST25.txt

cctgctgtta	tgtctgcata	caatactatg	atgttgatta	tcgttagtagg	ttgggcaata	600
tacccagctg	gatatgctgc	tggttactta	atgggtggag	atggcgtata	tgctcagaat	660
ttaaacgtta	tatataacct	tgctgacttc	gttaacaaga	ttttatttgg	tttagttatc	720
tggcatgttg	ctgttaaaga	atcttctaat	gcta			754

<210> 149

<211> 251

<212> PRT

<213> Marine eubacteria

<400> 149

Met	Gly	Lys	Arg	Leu	Val	Ile	Leu	Gly	Gly	Val	Ile	Ala	Leu	Pro	Ser
1				5				10						15	

Phe	Ala	Ala	Ser	Gly	Gly	Asp	Leu	Asp	Ser	Ser	Asp	Leu	Thr	Gly	Val
			20			25						30			

Ser	Phe	Trp	Leu	Val	Thr	Ala	Ala	Leu	Leu	Ala	Ala	Thr	Val	Phe	Phe
	35				40							45			

Phe	Val	Glu	Arg	Asp	Gln	Val	Ser	Ala	Lys	Trp	Lys	Thr	Ser	Leu	Thr
50					55				60						

Val	Ser	Gly	Leu	Val	Thr	Gly	Ile	Ala	Phe	Trp	His	Tyr	Leu	Tyr	Met
65				70				75				80			

Arg	Gly	Val	Trp	Ile	Glu	Thr	Gly	Glu	Thr	Pro	Thr	Val	Phe	Arg	Tyr
	85				90							95			

Ile	Asp	Trp	Leu	Leu	Thr	Val	Pro	Leu	Leu	Met	Val	Glu	Phe	Tyr	Leu
	100				105						110				

Ile	Leu	Ala	Ala	Cys	Thr	Asn	Val	Ala	Gly	Ser	Leu	Phe	Lys	Lys	Leu
	115						120					125			

Leu	Ile	Gly	Ser	Leu	Val	Met	Leu	Ile	Ala	Gly	Tyr	Met	Gly	Glu	Ser
130				135						140					

Gly	Asn	Leu	Pro	Val	Leu	Pro	Ala	Phe	Leu	Ile	Gly	Cys	Ala	Ala	Trp
145				150				155			160				

Leu	Tyr	Met	Ile	Tyr	Glu	Leu	Tyr	Ala	Gly	Glu	Gly	Lys	Ala	Ala	Val
	165					170						175			

Thr	Thr	Ala	Ser	Pro	Ala	Val	Met	Ser	Ala	Tyr	Asn	Thr	Met	Met	Leu
	180				185							190			

02716.0005.NPUS01.ST25.txt

Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala Gly
195 200 205

Tyr Leu Met Gly Gly Asp Gly Val Tyr Ala Gln Asn Leu Asn Val Ile
210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Val Ile
225 230 235 240

Trp His Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 150

<211> 754

<212> DNA

<213> Marine eubacteria

<400> 150

atgggtaaaa gattagtat cttaggcggt gttattgcgc ttccttcgtt tgctgcaagt 60
ggaggcgatc ttgattctag tgatctact ggagtatctt tttggcttgt tactgctgct 120
ctcttagctg ctactgtttt ctttttgtt gaaagagatc aagtaagcgc taaatggaaa 180
acatcaactt cagtttctgg tttagttact ggtattgcat tctggcatta tctctatatg 240
agaggtgtgt ggatcgaaac cggtgaaaca ccaacagtat ttagatatat tgattggttg 300
ctaaactgttc cgttactaat gggtgagttc tacttaatcc tcgcagctt cactaatgtt 360
gcaggttcat tatttaagaa actactaatt ggttcgcttg taatgcttat tgccaggat 420
atgggtgagt ctggaaatct tccagtattt cctgcattcc ttattgggtg cgccagcatgg 480
ttatacatga tttatgaact atatgcttgtt gaaggtaagg ctgcagttac tactgctagt 540
cctgctgtta tgtctgcata caatactatg atgttattt tcgttagtgg ttggcaata 600
tacccagctg gatatgctgc tggttactta atgggtggag atggcgata tgctcagaat 660
ttaaacgtta tatataacct tgctgacttt gttaacaaga ttttatttgg ttttagttatc 720
tggcatgttg ctgttaaaga atcttctaat gcta 754

<210> 151

<211> 254

<212> PRT

<213> Marine eubacteria

<400> 151

Ser Lys Lys Leu Leu Ala Thr Phe Leu Val Val Thr Ser Ile Pro Ala
1 5 10 15

Ile Ala Leu Ala Gly Gly His Ser Ser Gly Gly Leu Ala Gly Asp Asp
20 25 30

02716.0005.NPUS01.ST25.txt

Cys Val Gly Val Thr Phe Trp Ile Ile Ser Met Ala Met Val Ala Ser
35 40 45

Thr Val Phe Phe Ile Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys
50 55 60

Thr Ser Leu Thr Val Ser Ala Leu Met Thr Leu Ile Ala Ala Val His
65 70 75 80

Tyr Phe Tyr Met Arg Asp Val Trp Val Ala Thr Gly Glu Ser Pro Thr
85 90 95

Val Phe Arg Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Met Ile
100 105 110

Glu Phe Tyr Phe Ile Leu Ala Ala Val Thr Thr Val Ser Ser Gly Ile
115 120 125

Phe Trp Arg Leu Leu Val Gly Thr Val Ile Met Leu Val Gly Gly Tyr
130 135 140

Leu Gly Glu Ala Gly Met Ile Ser Val Met Thr Gly Phe Ile Ile Gly
145 150 155 160

Met Ile Gly Trp Leu Tyr Ile Leu Tyr Glu Ile Phe Ala Gly Glu Ala
165 170 175

Ser Lys Ala Asn Ala Ser Ser Gly Ser Ala Ala Cys Gln Thr Ala Phe
180 185 190

Gly Ala Leu Arg Leu Ile Val Thr Ile Gly Trp Ala Ile Tyr Pro Leu
195 200 205

Gly Tyr Phe Leu Gly Tyr Leu Gly Gly Ala Asp Pro Ala Thr Leu
210 215 220

Asn Ile Val Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Ala Phe Gly
225 230 235 240

Leu Ile Ile Trp Ala Ala Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 152
<211> 763
<212> DNA
<213> Marine eubacteria

02716.0005.NPUS01.ST25.txt

<400> 152
 agcaagaaac ttcttgcac atttctagta gtaacatcaa taccagcaat agcattagct 60
 ggtgggcatt catctggtgg ttttagcagga gatgactgcg taggtgttac tttctggatt 120
 atttctatgg ctatggttgc ttcaacagta ttctttattg ttgagcgtga cagagttag 180
 gcgaaatgga aaacatcatt aacagtatca gcgccttatga cttaatcgc agctgttcac 240
 tatttctaca tgagagatgt ttgggttagca actggcgaat caccaacagt cttagatat 300
 atagatttgt tgttaacagt tccacttcta atgattgagt tctactttat cttagcagcg 360
 gttacaactg tatcttcagg aattttctgg agattactag taggtactgt aataatgcta 420
 gtaggtggat acttaggtga agctggaatg atttcggtaa tgacaggaaa cattataggg 480
 atgataggtt ggctatacat tctttatgaa atcttgcag gtgaagctag caaagcaa 540
 gcttctagtg gaagtgcagc ttgtcaaaca gcctttggag cttagctt aatcgtaacc 600
 attgggttggg caatttatcc gctaggatat ttcttaggtt atctaggcgg tggggcagac 660
 ccagctacat taaacattgt ttacaactta gctgactttg taaacaaaat tgctttgg 720
 ttaattataat gggcagcagc tgtaaagaa tcttctaatt cta 763

<210> 153

<211> 254

<212> PRT

<213> Marine eubacteria

<400> 153

Ser Lys Lys Leu Leu Ala Thr Phe Leu Val Val Thr Ser Ile Pro Ala
 1 5 10 15

Ile Ala Leu Ala Gly Gly His Ser Ser Gly Gly Leu Ala Gly Asp Asp
 20 25 30

Tyr Val Gly Val Thr Phe Trp Ile Ile Ser Met Ala Met Val Ala Ser
 35 40 45

Thr Val Phe Phe Ile Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys
 50 55 60

Thr Ser Leu Thr Val Ser Ala Leu Val Thr Leu Ile Ala Ala Val His
 65 70 75 80

Tyr Phe Tyr Met Arg Asp Val Trp Val Ala Thr Gly Glu Ser Pro Thr
 85 90 95

Val Phe Arg Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Met Ile
 100 105 110

02716.0005.NPUS01.ST25.txt

Glu Phe Tyr Phe Ile Leu Ala Ala Val Thr Thr Val Ser Ser Gly Ile
 115 120 125

Phe Trp Arg Leu Leu Val Gly Thr Val Ile Met Leu Val Gly Gly Tyr
 130 135 140

Leu Gly Glu Ala Gly Met Ile Ser Val Met Thr Gly Phe Ile Ile Gly
 145 150 155 160

Met Ile Gly Trp Leu Tyr Ile Leu Tyr Glu Ile Phe Ala Gly Glu Ala
 165 170 175

Ser Lys Ala Asn Ala Ser Ser Gly Ser Ala Ala Cys Gln Thr Ala Phe
 180 185 190

Gly Ala Leu Arg Leu Ile Val Thr Ile Gly Trp Ala Ile Tyr Pro Leu
 195 200 205

Gly Tyr Phe Leu Gly Tyr Leu Gly Gly Ala Asp Pro Ala Thr Leu
 210 215 220

Asn Ile Val Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Ala Phe Gly
 225 230 235 240

Leu Ile Ile Trp Ala Ala Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 154

<211> 763

<212> DNA

<213> Marine eubacteria

<400> 154

agcaagaaac ttcttgcac atttctagta gtaacatcaa taccagcaat agcattagct 60

ggtgggcatt catctggtgg ttttagcagga gatgactacg taggtgttac ttcttggatt 120

atttctatgg ctatgggtgc ttcaacagta ttctttattt ttgagcgtga cagagttgt 180

gcgaaatgga aaacatcatt aacagtatca gcgcgtgtga cttaatcgc agctgttcac 240

tatttctaca tgagagatgt ttgggttagca actggcgaat caccaacagt cttagatat 300

atagatttgt tgtaaacagt tccacttcta atgattgagt tctactttat cttagcagcg 360

gttacaactg tatcttcagg aattttctgg agattactag taggtactgt aataatgcta 420

gttagtgttatgtt acttaggtga agctggaatg atttcggtaa tgacaggttt cattataggg 480

atgataggtt ggctatacat tctttatgaa atctttgcag gtgaagctag caaagcaaat 540

gcttctagtg gaagtgcagc ttgtcaaaca gcctttggag ctttacgttt aatcgtaacc 600

attgggttggg caatttatcc gctaggatat ttcttaggtt atctaggcgg tggggcagac 660

02716.0005.NPUS01.ST25.txt

ccagctacat taaacattgt ttacaactta gctgactttg taaacaaaat tgctttgg 720
ttaattataat gggcagcagc tgttaaagaa tcttctaattt cta 763

<210> 155
<211> 254
<212> PRT
<213> Marine eubacteria

<400> 155

Ser Lys Lys Phe Phe Ser Thr Leu Leu Leu Val Thr Ser Leu Pro Thr
1 5 10 15

Leu Ala Leu Ala Gly Gly His Ser Ser Gly Leu Ala Gly Asp Asp Tyr
20 25 30

Val Gly Val Thr Phe Trp Ile Ile Ser Met Ala Met Val Ala Ser Thr
35 40 45

Val Phe Phe Ile Val Glu Arg Asp Arg Val Ser Ser Lys Trp Lys Thr
50 55 60

Ser Leu Thr Val Ser Ala Leu Val Thr Leu Ile Ala Ala Val His Tyr
65 70 75 80

Phe Tyr Met Arg Asp Val Trp Val Ala Thr Gly Glu Ser Pro Thr Val
85 90 95

Phe Arg Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Met Ile Glu
100 105 110

Phe Tyr Phe Ile Leu Ala Ala Val Thr Thr Val Ser Ser Gly Ile Phe
115 120 125

Trp Arg Leu Leu Ile Gly Thr Val Val Met Leu Val Gly Gly Tyr Met
130 135 140

Gly Glu Ala Gly Met Ile Ser Val Met Thr Gly Phe Ile Ile Gly Met
145 150 155 160

Ile Gly Trp Leu Tyr Ile Leu Tyr Glu Ile Phe Ala Gly Glu Ala Ser
165 170 175

Lys Ala Asn Ala Ser Ser Gly Ser Ala Ala Cys Gln Thr Ala Phe Gly
180 185 190

Ala Leu Arg Leu Ile Val Thr Val Gly Trp Ala Ile Tyr Pro Ile Gly
195 200 205

02716.0005.NPUS01.ST25.txt

Tyr Phe Val Gly Tyr Leu Thr Gly Gly Gly Ala Asp Ala Ala Thr Leu
210 215 220

Asn Ile Val Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Ala Phe Gly
225 230 235 240

Leu Ile Ile Trp Ala Ala Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 156

<211> 763

<212> DNA

<213> Marine eubacteria

<400> 156

agcaaaaaagt tttttcgac gcttctatta gtaacatcct tgccaaacttt agcttttagca 60
ggtgggcatt catctggtct tgctggagat gactatgtag gtgttacttt ctggattatt 120
tccatggcta tggttgcgtc aacagtattt ttcattgtgg agcgtgacag agttagctca 180
aaatggaaaa catcattaac agtacgtact ttggttacat taattgctgc agtgcattat 240
ttttatatga gagatgtatg ggttagcaact ggtgaatcac caacagtatt tagatata 300
gattggttat taacagtgcc actattaatg attgagttct actttatttt agcagcggta 360
actacagttt cttcaggaat attctggaga ctattaattt gtacagttgt aatgctagta 420
ggtgggtata tgggtgaagc tggaaatgatc tcagtgatga caggttcat tattcggatg 480
atcgggttggc tatatattct ttacgaaatc tttgctggtg aagctagtaa agcaaacgct 540
tctagtgaaa gcgcagcgtc ccaaacagca tttgggtgcgt tacgttaat cgttacagtt 600
ggttgggcga tctatccaat aggatacttc gtaggctatc taactggtg tggtgcagac 660
gcagctacac taaacatagt ttacaactta gctgatttt taaacaaaat tgcctttgg 720
ttaatcatat gggcagcagc tgttaaagaa tcttctaattt cta 763

<210> 157

<211> 254

<212> PRT

<213> Marine eubacteria

<400> 157

Ser Lys Lys Phe Phe Ser Thr Leu Leu Leu Val Thr Ser Leu Pro Thr
1 5 10 15

Leu Ala Leu Ala Gly Gly His Ser Ser Gly Leu Ala Gly Asp Asp Tyr
20 25 30

Val Gly Val Thr Phe Trp Ile Ile Ser Met Ala Met Val Ala Ser Thr
Page 130

Val Phe Phe Ile Val Glu Arg Asp Arg Val Ser Ser Lys Trp Lys Thr
 50 55 60

Ser Leu Thr Val Ser Ala Leu Val Thr Leu Ile Ala Ala Val His Tyr
 65 70 75 80

Phe Tyr Met Arg Asp Val Trp Val Ala Thr Gly Glu Ser Pro Thr Val
 85 90 95

Phe Arg Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Met Ile Glu
 100 105 110

Phe Tyr Phe Ile Leu Ala Ala Val Thr Thr Val Ser Ser Gly Ile Phe
 115 120 125

Trp Arg Leu Leu Ile Gly Thr Val Val Met Leu Val Gly Gly Tyr Met
 130 135 140

Gly Glu Ala Gly Met Ile Ser Val Met Thr Gly Phe Ile Ile Gly Met
 145 150 155 160

Ile Gly Trp Leu Tyr Ile Leu Tyr Glu Ile Phe Ala Gly Glu Ala Ser
 165 170 175

Lys Ala Asn Ala Ser Ser Gly Ser Ala Ala Cys Gln Thr Ala Phe Gly
 180 185 190

Ala Leu Arg Leu Ile Val Thr Val Gly Trp Ala Ile Tyr Pro Ile Gly
 195 200 205

Tyr Phe Val Gly Tyr Leu Thr Gly Gly Gly Ala Asp Ala Ala Thr Leu
 210 215 220

Asn Ile Val Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Ala Phe Gly
 225 230 235 240

Leu Ile Ile Trp Ala Ala Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 158

<211> 763

<212> DNA

<213> Marine eubacteria

<400> 158

agcaaaaaagt tttttcgac gcttcttata gtaacatcct tgccaaacttt agcttttagca

60

02716.0005.NPUS01.ST25.txt

ggtgggcatt	catctggtct	tgctggagat	gactatgtag	gtgttacttt	ctggattatt	120
tccatggcta	tggttgcgtc	aacagtattt	ttcattgtgg	agcgtgacag	athtagctca	180
aatggaaaa	catcattaac	agtatcagct	ttggttacat	taattgctgc	agtgcattat	240
tttatatga	gagatgtatg	ggttagcaact	ggtgaatcac	caacagtatt	tagatata	300
gattggttat	taacagtgcc	actattaatg	attgagttct	actttatttt	agcagcggta	360
actacagttt	cttcaggaat	attctggaga	ctattaattg	gtacagttgt	aatgctagta	420
ggtgggtata	tgggtgaagc	tggaatgatc	tcagtatgta	caggtttcat	tatcgggatg	480
atcgggtggc	tatatattct	ttacgaaatc	tttgctggtg	aagctagtaa	agcaaacgct	540
tctagtggaa	gcgcagcatg	ccaaacagca	tttggtgcgt	tacgttaat	cgttacagtt	600
ggttggcga	tctatccaat	aggatacttc	gtaggctatc	taactggtgg	tggtgcagac	660
gcagctacac	taaacatagt	ttacaactta	gctgattttg	taaacaaaat	tgcctttgg	720
ttaatcatat	ggcagcagc	tgttaaagaa	tcttctaatt	cta		763

<210> 159

<211> 250

<212> PRT

<213> Marine eubacteria

<400> 159

Met	Lys	Leu	Leu	Leu	Ile	Leu	Gly	Ser	Ala	Ile	Ala	Leu	Pro	Ser	Phe
1					5				10					15	

Ala	Ala	Ala	Gly	Gly	Asp	Leu	Asp	Ile	Ser	Asp	Thr	Val	Gly	Val	Ser
			20					25				30			

Phe	Trp	Leu	Val	Thr	Ala	Gly	Met	Leu	Ala	Ala	Thr	Val	Phe	Phe	Phe
35					40						45				

Val	Glu	Arg	Asp	Gln	Val	Ser	Ala	Lys	Trp	Lys	Thr	Ser	Leu	Thr	Val
50					55					60					

Ser	Gly	Leu	Ile	Thr	Gly	Ile	Ala	Phe	Trp	His	Tyr	Leu	Tyr	Met	Arg
65					70				75			80			

Gly	Val	Trp	Ile	Asp	Thr	Gly	Asp	Thr	Pro	Thr	Val	Phe	Arg	Tyr	Ile
				85				90			95				

Asp	Trp	Leu	Leu	Thr	Val	Pro	Leu	Gln	Met	Val	Glu	Phe	Tyr	Leu	Ile
100					105						110				

Leu	Ala	Ala	Cys	Thr	Ser	Val	Ala	Ala	Ser	Leu	Phe	Lys	Lys	Leu	Leu
115					120						125				

02716.0005.NPUS01.ST25.txt

Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu Ala Gly
130 135 140

Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly Trp Leu
145 150 155 160

Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala Val Ser
165 170 175

Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met Met Ile
180 185 190

Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala Gly Tyr
195 200 205

Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu Ile Tyr
210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 160
<211> 750
<212> DNA
<213> Marine eubacteria

<400> 160
atgaaattat tattgatctt aggtagtgtt attgcacttc catcattgc tgctgctgg 60
ggcgatctag atataagtga tactgttggt gttcattct ggctggttac agctggatag 120
ttagcggcaa ctgtgttctt tttttagaa agagaccaag tcagcgctaa gtggaaaact 180
tcacttactg tatctggttt aattactggt atagctttt ggcattatct ctatatgaga 240
ggtgtttgga tagacactgg tgataccca acagtattca gatatattga ttggttatta 300
actgttccat tacaaatggt tgagttctat ctaattcttgc ctgcttgac aagtgttgct 360
gcttcattat ttaagaagct tctagctggt tcattagtaa tgtaggtgc tggatttgca 420
ggcgaagctg gattagctcc tgtattacct gcttcattt ttggatggc tggatggta 480
tacatgattt atgagctata tatgggtgaa ggttaaggctg ctgtaagtac tgcaagtcc 540
gctgttaact ctgcatacaa cgcaatgatg atgattattg ttgttggatg ggcaatttat 600
cctgctggat atgctgctgg ttacctaattg ggtggcgaag gtgtatacgc ttcaaactta 660
aaccttataat ataaccttgc tgactttgtt aacaagattc tatttggttt gatcatttgg 720

aatgttcag ttaaagaatc tagtaatgct

750

<210> 161

<211> 230

<212> PRT

<213> Marine eubacteria

<400> 161

Met Lys Val Leu Met Leu Asn Pro Gly Asp His Val Ala Ile Ser Phe
 1 5 10 15

Trp Leu Ile Ser Met Ala Met Val Ala Ala Thr Ala Phe Phe Phe Leu
 20 25 30

Glu Arg Asp Arg Val Ala Ala Lys Trp Lys Thr Ser Leu Thr Val Ala
 35 40 45

Gly Leu Val Thr Gly Ile Ala Ala Trp His Tyr Phe Tyr Met Arg Gly
 50 55 60

Val Trp Val Ala Thr Gly Asp Ser Pro Thr Val Leu Arg Tyr Ile Asp
 65 70 75 80

Trp Leu Ile Thr Val Pro Leu Gln Ile Val Glu Phe Tyr Val Ile Leu
 85 90 95

Ala Ala Met Thr Ala Val Ala Ser Ser Leu Phe Trp Arg Leu Leu Ile
 100 105 110

Ala Ser Ile Ile Met Leu Val Phe Gly Tyr Met Gly Glu Thr Gly Ala
 115 120 125

Met Asn Val Thr Leu Ala Phe Val Ile Gly Met Ala Gly Trp Leu Tyr
 130 135 140

Ile Ile Tyr Glu Val Phe Ala Gly Glu Ala Ser Lys Ala Ser Ala Gly
 145 150 155 160

Ser Gly Asn Ala Ala Gly Gln Thr Ala Phe Asn Ala Leu Arg Leu Ile
 165 170 175

Val Thr Val Gly Trp Ala Ile Tyr Pro Ile Gly Tyr Ala Val Gly Tyr
 180 185 190

Phe Gly Gly Gly Val Asp Ala Gly Ser Leu Asn Leu Ile Tyr Asn Leu
 195 200 205

Ala Asp Phe Val Asn Lys Ile Ala Phe Gly Met Ala Ile Tyr Val Ala
 Page 134

Ala Val Ser Asp Ser Asn
 225 230

<210> 162
 <211> 690
 <212> DNA
 <213> Marine eubacteria

<400> 162
 atgaaagtat taatgctaaa tcccgagat cacgttgcga tttcgaaaa gttgatctct 60
 atggccatgg ttgccgtac tgcttccttc tttctgaaa gagatcgtgt agcagctaaa 120
 tggaaaaacgt cccttacagt agctggtttta gttactggta ttgcggcgtg gcactacttc 180
 tacatgagag gcgtatgggt tgctactgggt gactcaccaa ctgtccttcg ttacattgac 240
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 gctgttgctt caagcctttt ctggagacta ttaattgcat caattattat gcttgccttt 360
 gtttacatgg gtgaaactgg agcgatgaat gtaactctag cttcgtaat aggtatggct 420
 ggatggttat acatcatcta cgagggtttt gcaggtgaag caagcaaggc aagtgcgtgg 480
 agtggaaacg ctgctggtca gactgcattt aacgcattga gattaattgt tacagtagga 540
 tggcaattt atccaattgg ttatgctgta gttacttcg gtggtggcgt agacgccgg 600
 tcattgaact taatctataa cttgcagac tttgttaata aaattgcatt tggatggct 660
 atttatgttag ctgcagtatc agacagcaac 690

<210> 163
 <211> 249
 <212> PRT
 <213> Marine eubacteria

<400> 163

Met Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr Phe
 1 5 10 15

Ala Ala Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val Ser
 20 25 30

Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe Phe
 35 40 45

Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr Val
 50 55 60

Ser Gly Leu Val Thr Gly Ile Ala Phe Trp Lys Tyr Met Tyr Met Arg
 65 70 75 80

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Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr Ile
 85 90 95

Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu Ile
 100 105 110

Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu Leu
 115 120 125

Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala Gly
 130 135 140

Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp Val
 145 150 155 160

Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys Asn
 165 170 175

Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr Ile
 180 185 190

Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly Tyr
 195 200 205

Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr Asn
 210 215 220

Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp Asn
 225 230 235 240

Val Ala Val Lys Glu Ser Ser Asn Ala
 245

<210> 164

<211> 750

<212> DNA

<213> Marine eubacteria

<400> 164

atgaaattat tactgatatt aggttagtgtt attgcacttc ctacattgc tgcaagggtt 60

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ttagcatcta ctgtattttt ctttggtaa agagatagag tttctgcaaa atggaaaaca 180

tcattaactg tatctggctc tgttactgg attgctttct ggaaatacat gtacatgaga 240

ggggatggta ttgaaactgg tgattcgcca actgtattta gatacattga ttggttacta 300

acagttcctc tattaatatg tgaattctac ttaattcttg ctgctgcaac taatgttgct 360

02716.0005.NPUS01.ST25.txt

ggatcattat ttaagaaatt actagtttgtt tctttgtta tgcttgcgtt tggttacatg	420
ggtaaggcag gaatcatggc tgcattgcgc gcattcatta ttgggtgttt agcttgggta	480
tacatgattt atgaattatg ggctggagaa ggaaaatctg catgtaatac tgcaagtcct	540
gctgtgcaat cagcttacaa cacaatgatg tatattatca tctttgggtt ggcgatttat	600
cctgttagtt atttcacagg ttacctgatg ggtgacggtg gatcagctct taacttaaac	660
cttatctata accttgctga ctttgttaac aagattctat ttgggttaat tataatggaaat	720
tttgctgtta aagaatcttc taatgcttaa	750

<210> 165
 <211> 249
 <212> PRT
 <213> Marine eubacteria

<400> 165

Met Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr Phe
 1 5 10 15

Ala Ala Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val Ser
 20 25 30

Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe Phe
 35 40 45

Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr Val
 50 55 60

Ser Gly Leu Val Thr Gly Ile Ala Phe Trp Asn Tyr Met Tyr Met Arg
 65 70 75 80

Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr Ile
 85 90 95

Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu Ile
 100 105 110

Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu Leu
 115 120 125

Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala Gly
 130 135 140

Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp Val
 145 150 155 160

Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys Asn
 165 170 175

Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr Ile
 180 185 190

Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly Tyr
 195 200 205

Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr Asn
 210 215 220

Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp Asn
 225 230 235 240

Val Ala Val Lys Glu Ser Ser Asn Ala
 245

<210> 166

<211> 750

<212> DNA

<213> Marine eubacteria

<400> 166

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ttagcatcta ctgtatttt ctttgtaa agagatagag tttctgaaa atggaaaaca 180

tcattaactg tatctggctc tgttactggg attgctttct ggaattacat gtacatgaga 240

ggggtatgga ttgaaactgg tgattcgcca actgtatTTT gatacattga ttggttacta 300

acagttcctc tattaaatag tgaattctac ttaattcttg ctgctgcaac taatgttgct 360

ggatcattat ttaagaaatt actagttgg tctttgtta tgcttggtt tggttacatg 420

ggtaagcag gaatcatggc tgcatggcgc gcattcatta ttgggtgtt agcttgggta 480

tacatgattt atgaattatg ggctggagaa ggaaaatctg catgtaatac tgcaagtcc 540

gctgtgcaat cagcttacaa cacaatgatg tatattatca tctttgggtt ggcgatttt 600

cctgttagtt atttcacagg ttacctgatg ggtgacgggt gatcagctct taacttaaac 660

cttatctata accttgctga ctttgttaac aagattctat ttggtttaat tataatggaaat 720

gttgctgtta aagaatcttc taatgcttaa 750

<210> 167

<211> 249

<212> PRT

<213> Marine eubacteria

<400> 167

02716.0005.NPUS01.ST25.txt

Met Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr Phe
1 5 10 15

Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val Ser
20 25 30

Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe Phe
35 40 45

Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr Val
50 55 60

Ser Gly Leu Val Thr Gly Ile Ala Phe Trp Gln Tyr Met Tyr Met Arg
65 70 75 80

Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr Ile
85 90 95

Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu Ile
100 105 110

Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu Leu
115 120 125

Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala Gly
130 135 140

Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp Val
145 150 155 160

Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys Asn
165 170 175

Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr Ile
180 185 190

Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly Tyr
195 200 205

Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr Asn
210 215 220

Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp Asn
225 230 235 240

Val Ala Val Lys Glu Ser Ser Asn Ala
245

<210> 168
 <211> 750
 <212> DNA
 <213> Marine eubacteria

<400> 168
 atgaaattat tactgatatt aggtatgtt attgcacttc ctacattgc tgcaggtgg 60
 ggtgaccttg atgctagtga ttacactgg tttctttt gtttagttac tgctgctta 120
 ttagcatcta ctgtatTTT ctttggaa agagatagag tttctgaaa atggaaaaca 180
 tcattaactg tatctggtct tgttactggt attgcttct ggcagtagat gtacatgaga 240
 ggggtatgga ttgaaactgg tgattcgcca actgtattta gatacattga ttggttacta 300
 acagttccctc tattaatatg tgaattctac ttaattcttg ctgctgcaac taatgttgct 360
 ggatcattat ttaagaaatt actagttgg tctcttgg tgcgggttgg tggttacatg 420
 ggtgaagcag gaatcatggc tgcatggcgc gcattcatta ttgggtgtt agcttggta 480
 tacatgattt atgaattatg ggctggagaa ggaaaatctg catgtaaatac tgcaagtcct 540
 gctgtgcaat cagcttacaa cacaatgatg tatattatca tctttgggtt ggcgatttat 600
 cctgttaggtt atttcacagg ttacctgatg ggtgacggtg gatcagctct taacttaaac 660
 cttatctata accttgctga ctttggtaac aagattctat ttgggttaat tataatggat 720
 gttgctgtta aagaatcttc taatgcttaa 750

<210> 169
 <211> 252
 <212> PRT
 <213> Marine eubacteria

<400> 169

Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Ala Ile Ala Leu Pro
 1 5 10 15

Ser Phe Ala Ala Ala Gly Gly Asp Leu Asp Ile Ser Asp Thr Val Gly
 20 25 30

Val Ser Phe Trp Leu Val Thr Ala Gly Met Leu Ala Ala Thr Val Phe
 35 40 45

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
 50 55 60

Ala Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp Lys Tyr Leu Tyr
 65 70 75 80

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg
 Page 140

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr
 100 105 110

Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys
 115 120 125

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
 130 135 140

Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly
 145 150 155 160

Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala
 165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
 180 185 190

Met Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
 195 200 205

Gly Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu
 210 215 220

Ile Tyr Asn Leu Ala Asp Leu Val Asn Lys Ile Leu Phe Gly Leu Ile
 225 230 235 240

Ile Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 170

<211> 756

<212> DNA

<213> Marine eubacteria

<400> 170

accatgggta aattattact gatattaggt agtgctattg cacttccatc atttgctgct 60

gctgggtggcg atctagatat aagtgatact gttgggtgttt cattctggct ggttacagct 120

ggtagatgttag cggcaactgt gttctttttt gtagaaagag accaagtcag cgctaaagtgg 180

aaaacttcac ttgctgtatc tggtttaatt actggatatac ctttttgaa atatcttat 240

atgagaggtg tttggataga cactggtgat accccaacag tattcagata tattgattgg 300

ttattaactg ttccattaca aatgggttagt ttcttatctaa ttcttgctgc ttgtacaagt 360

gttgctgctt cattatcaa gaagcttcta gctggttcat tagtaatgtt aggtgctgga 420

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tttgcaggcg aagctggatt agctcctgta ttacctgctt tcattattgg tatggctgga	480
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agtcctgctg ttaactctgc atacaacgca atgatgatga ttattgttgc tgatggca	600
atttatcctg ctggatatgc tgctggttac ctaatgggtg gcgaagggtgt atacgcttca	660
aacttaaacc ttatataaa ccttgcgcac cttgttaaca agattcttatt tggttgcatt	720
atttggaatg ttgctgttaa agaatcttct aatgct	756

<210> 171

<211> 252

<212> PRT

<213> Marine eubacteria

<400> 171

Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Ala Ile Ala Leu Pro			
1	5	10	15
10	15		

Ser Phe Ala Ala Ala Gly Gly Asp Leu Asp Ile Ser Asp Thr Val Gly			
20	25	30	
30			

Val Ser Phe Trp Leu Val Thr Ala Gly Met Leu Ala Ala Thr Val Phe			
35	40	45	
45			

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu			
50	55	60	
60			

Ala Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp Asn Tyr Leu Tyr			
65	70	75	80
75	80		

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg			
85	90	95	
95			

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr			
100	105	110	
110			

Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys			
115	120	125	
125			

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu			
130	135	140	
140			

Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly			
145	150	155	160
155	160		

Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala			
165	170	175	
175			

02716.0005.NPUS01.ST25.txt

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
180 185 190

Met Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
195 200 205

Gly Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu
210 215 220

Ile Tyr Asn Leu Ala Asp Leu Val Asn Lys Ile Leu Phe Gly Leu Ile
225 230 235 240

Ile Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 172

<211> 756

<212> DNA

<213> Marine eubacteria

<400> 172

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gctgggtggcg atctagatat aagtgtatact gttgggtgttt cattctggct ggttacagct 120
ggtagatgttag cggcaactgt gttctttttt gtagaaagag accaagtcag cgctaaatgg 180
aaaacttcac ttgcgtgtatc tggtttaatt actggatatac cttttggaa ttatctctat 240
atgagaggtg tttggataga cactgggtat accccaacag tattcagata tattgattgg 300
ttattaactg ttccattaca aatggtttagt ttctatctaa ttcttgctgc ttgtacaagt 360
gttgcgtgctt cattatcaa gaagcttcta gctgggtcat tagtaatgtt aggtgctgga 420
tttgcaggcg aagctggatt agctcctgtt ttacctgctt tcattattgg tatggctgga 480
tggttataca tgatttatga gctatatacg ggtgaaggta aggctgctgt aagtactgca 540
agtcctgctg ttaactctgc atacaacgc atgatgtatc ttattgttgt tggatggca 600
atttatcctg ctggatatgc tgctggttac ctaatgggtg gcgaagggtgt atacgcttca 660
aacttaaacc ttatataaa ccttgcgcac cttgttaaca agattcttatt tggtttgatc 720
atttggaaatg ttgcgtttaa agaatcttctt aatgct 756

<210> 173

<211> 252

<212> PRT

<213> Marine eubacteria

<400> 173

Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Ala Ile Ala Leu Pro
1 5 10 15

02716.0005.NPUS01.ST25.txt

Ser Phe Ala Ala Ala Gly Gly Asp Leu Asp Ile Ser Asp Thr Val Gly
20 25 30

Val Ser Phe Trp Leu Val Thr Ala Gly Met Leu Ala Ala Thr Val Phe
35 40 45

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
50 55 60

Ala Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp Gln Tyr Leu Tyr
65 70 75 80

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg
85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr
100 105 110

Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys
115 120 125

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
130 135 140

Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly
145 150 155 160

Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala
165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
180 185 190

Met Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
195 200 205

Gly Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu
210 215 220

Ile Tyr Asn Leu Ala Asp Leu Val Asn Lys Ile Leu Phe Gly Leu Ile
225 230 235 240

Ile Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

02716.0005.NPUS01.ST25.txt

<211> 756
 <212> DNA
 <213> Marine eubacteria

<400> 174
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 ggtatgttag cgccaactgt gttcttttt gtagaaagag accaagtcag cgctaagtgg 180
 aaaacttcac ttgctgtatc tggtttaatt actggatag cttttggca gtatctctat 240
 atgagaggtg tttggataga cactggtgat accccaacag tattcagata tattgattgg 300
 ttattaaactg ttccattaca aatgggtgag ttctatctaa ttcttgctgc ttgtacaagt 360
 gttgctgctt cattattaa gaagcttcta gctggttcat tagtaatgtt aggtgctgga 420
 tttgcaggcg aagctggatt agctcctgta ttacctgctt tcattattgg tatggctgga 480
 tggttataca tgatttatga gctatatacg ggtgaaggta aggctgctgt aagtactgca 540
 agtcctgctg ttaactctgc atacaacgca atgatgatga ttattgttgt tggatggca 600
 atttatcctg ctggatatgc tgctggttac ctaatgggtg gcgaagggtgt atacgcttca 660
 aacttaaacc ttatataaa cttgccgac cttgttaaca agattcttatt tggtttgatc 720
 atttggaaatg ttgctgttaa agaatcttct aatgct 756

<210> 175
 <211> 252
 <212> PRT
 <213> Marine eubacteria

<400> 175

Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Ala Ile Ala Leu Pro
 1 5 10 15

Ser Phe Ala Ala Ala Gly Gly Asp Leu Asp Ile Ser Asp Thr Val Gly
 20 25 30

Val Ser Phe Trp Leu Val Thr Ala Gly Met Leu Ala Ala Thr Val Phe
 35 40 45

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
 50 55 60

Ala Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp Glu Tyr Leu Tyr
 65 70 75 80

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg
 85 90 95

02716.0005.NPUS01.ST25.txt

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr
 100 105 110

Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys
 115 120 125

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
 130 135 140

Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly
 145 150 155 160

Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala
 165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
 180 185 190

Met Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
 195 200 205

Gly Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu
 210 215 220

Ile Tyr Asn Leu Ala Asp Leu Val Asn Lys Ile Leu Phe Gly Leu Ile
 225 230 235 240

Ile Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 176

<211> 756

<212> DNA

<213> Marine eubacteria

<400> 176

accatgggta aattattact gatatttagt agtgcttattg cacttccatc atttgctgct 60

gctgggtggcg atctagatat aagtgatact gttgggtgtt cattctggct ggttacagct 120

ggtagatgtt tag cgccaactgt gttctttttt gtagaaagag accaagtca gctaaatgtgg 180

aaaacttcac ttgctgtatc tggtttaattt actggatag ctttttggaa atatcttat 240

atgagaggtg tttggataga cactggatgat accccaacag tattcagata tattgattgg 300

ttatataactg ttccattaca aatgggtttagt ttctatctaa ttcttgctgc ttgtacaagt 360

gttgctgctt cattatcaa gaagcttcta gctggatcat tagtaatgtt aggtgctgg 420

tttgcaggcg aagctggatt agctcctgta ttacctgctt tcattattgg tatggctgg 480

tggttataaca tgatttatga gctatataatg ggtgaaggta aggctgctgt aagtactgca 540

02716.0005.NPUS01.ST25.txt

agtcctgctg ttaactctgc atacaacgca atgatgatga ttattgttgt tggatggca	600
atttatcctg ctggatatgc tgctggttac ctaatgggtg gcgaagggtgt atacgcttca	660
aacttaaacc ttatataaa ccttgcgcac cttgttaaca agattctatt tggtttgatc	720
atttgaaatg ttgctgttaa agaatcttct aatgct	756

<210> 177
<211> 252
<212> PRT
<213> Marine eubacteria

<400> 177

Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Ala Ile Ala Leu Pro
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Ser Phe Ala Ala Ala Gly Gly Asp Leu Asp Ile Ser Asp Thr Val Gly
20 25 30

Val Ser Phe Trp Leu Val Thr Ala Gly Met Leu Ala Ala Thr Val Phe
35 40 45

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
50 55 60

Ala Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp Trp Tyr Leu Tyr
65 70 75 80

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg
85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr
100 105 110

Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys
115 120 125

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
130 135 140

Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly
145 150 155 160

Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala
165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
180 185 190

02716.0005.NPUS01.ST25.txt

Met Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
195 200 205

Gly Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu
210 215 220

Ile Tyr Asn Leu Ala Asp Leu Val Asn Lys Ile Leu Phe Gly Leu Ile
225 230 235 240

Ile Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 178
<211> 756
<212> DNA
<213> Marine eubacteria

<400> 178
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gctgggtggcg atctagatat aagtgatact gttgggtgtt cattctggct ggttacagct 120
ggtagatgttag cggcaactgt gttctttttt gtagaaagag accaagtca gctaaagtgg 180
aaaacttcac ttgctgtatc tggtttaatt actggatag ctttttggtg gtatctctat 240
atgagaggtg tttggataga cactggtgat accccaacag tattcagata tattgattgg 300
ttattaaactg ttccattaca aatgggttag ttctatctaa ttcttgctgc ttgtacaagt 360
gttgctgctt cattattaa gaagcttcta gctggttcat tagtaatgtt aggtgctgga 420
tttgcagggcg aagctggatt agctcctgta ttacctgctt tcattattgg tatggctgga 480
tggttataca tgatttatga gctatatatg ggtgaaggta aggctgctgt aagtactgca 540
agtcctgctg ttaactctgc atacaacgca atgatgatga ttattgttgc tggatggca 600
atttatcctg ctggatatgc tgctggttac ctaatgggtg gcgaagggtgt atacgcttca 660
aacttaaacc ttatataaa ccttgcgcac cttgttaaca agattcttatt tggtttgatc 720
atttggaaatg ttgctgttaa agaatcttct aatgct 756

<210> 179
<211> 252
<212> PRT
<213> Marine eubacteria

<400> 179

Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Ala Ile Ala Leu Pro
1 5 10 15

Ser Phe Ala Ala Ala Gly Gly Asp Leu Asp Ile Ser Asp Thr Val Gly
Page 148

Val Ser Phe Trp Leu Val Thr Ala Gly Met Leu Ala Ala Thr Val Phe
35 40 45

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
50 55 60

Ala Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr
65 70 75 80

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Ala
85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr
100 105 110

Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys
115 120 125

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
130 135 140

Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly
145 150 155 160

Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala
165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
180 185 190

Met Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
195 200 205

Gly Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu
210 215 220

Ile Tyr Asn Leu Ala Asp Leu Val Asn Lys Ile Leu Phe Gly Leu Ile
225 230 235 240

Ile Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 180

<211> 756

<212> DNA

<213> Marine eubacteria

02716.0005.NPUS01.ST25.txt

<400> 180
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ggtagatgttag cgccaactgt gttctttttt gtagaaagag accaagtcag cgctaagtgg 180
aaaacttac ttgctgtatc tggtttaatt actggatag cttttggca ttatctctat 240
atgagaggtg tttggataga cactggtgat accccaacag tattcgcata tattgattgg 300
ttattaactg ttccattaca aatggttgag ttctatctaa ttcttgctgc ttgtacaagt 360
gttgctgctt cattattaa gaagcttcta gctggttcat tagtaatgtt aggtgctgga 420
tttgcaggcg aagctggatt agctcctgta ttacctgctt tcattattgg tatggctgga 480
tggttataca tgatttatga gctatatacg ggtgaaggta aggctgctgt aagtactgca 540
agtcctgctg ttaactctgc atacaacgca atgatgatga ttattgttgc ttgatggc 600
atttacccctg ctggatatgc tgctggttac ctaatgggtg gcgaagggtgt atacgcttca 660
aacttaaacc ttatataaa cttgccgac cttgttaaca agattcttatt tggtttgc 720
atttggaaatg ttgctgttaa agaatcttct aatgct 756

<210> 181

<211> 252

<212> PRT

<213> Marine eubacteria

<400> 181

Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Ala Ile Ala Leu Pro
1 5 10 15

Ser Phe Ala Ala Ala Gly Gly Asp Leu Asp Ile Ser Asp Thr Val Gly
20 25 30

Val Ser Phe Trp Leu Val Thr Ala Gly Met Leu Ala Ala Thr Val Phe
35 40 45

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
50 55 60

Ala Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr
65 70 75 80

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Glu
85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr
100 105 110

02716.0005.NPUS01.ST25.txt

Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys
 115 120 125

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
 130 135 140

Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly
 145 150 155 160

Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala
 165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
 180 185 190

Met Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
 195 200 205

Gly Tyr Leu Met Gly Gly Glu Val Tyr Ala Ser Asn Leu Asn Leu
 210 215 220

Ile Tyr Asn Leu Ala Asp Leu Val Asn Lys Ile Leu Phe Gly Leu Ile
 225 230 235 240

Ile Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 182
 <211> 756
 <212> DNA
 <213> Marine eubacteria

<400> 182		
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ggtatgttag cggcaactgt gttctttttt gtagaaagag accaagtca gctaaagtgg	180	
aaaacttcac ttgctgtatc tggtttaatt actggatag cttttggca ttatctctat	240	
atgagaggtg tttggataga cactgggtat accccaacag tattcgaata tattgattgg	300	
ttattaactg ttccattaca aatggttgag ttctatctaa ttcttgctgc ttgtacaagt	360	
gttgctgctt cattatcaa gaagcttcta gctggttcat tagtaatgtt aggtgctgga	420	
tttgcaggcg aagctggatt agctcctgta ttacctgctt tcattattgg tatggctgga	480	
tggttataca tgatttatga gctatatatg ggtgaaggta aggctgctgt aagtactgca	540	
agtcctgctg ttaactctgc atacaacgca atgatgatga ttattgttgt tggatggca	600	

02716.0005.NPUS01.ST25.txt
atttatcctg ctggatatgc tgctggttac ctaatgggtg gcgaagggtgt atacgcttca 660
aacttaaacc ttatatataa ccttgccgac cttgttaaca agattctatt tggtttgatc 720
atttggaaatg ttgctgttaa agaatcttct aatgct 756

<210> 183
<211> 252
<212> PRT
<213> Marine eubacteria

<400> 183

Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Ala Ile Ala Leu Pro
1 5 10 15

Ser Phe Ala Ala Ala Gly Gly Asp Leu Asp Ile Ser Asp Thr Val Gly
20 25 30

Val Ser Phe Trp Leu Val Thr Ala Gly Met Leu Ala Ala Thr Val Phe
35 40 45

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
50 55 60

Ala Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr
65 70 75 80

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Gln
85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr
100 105 110

Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys
115 120 125

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
130 135 140

Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly
145 150 155 160

Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala
165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
180 185 190

Met Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
Page 152

Gly Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu
 210 215 220

Ile Tyr Asn Leu Ala Asp Leu Val Asn Lys Ile Leu Phe Gly Leu Ile
 225 230 235 240

Ile Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 184

<211> 756

<212> DNA

<213> Marine eubacteria

<400> 184

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 gctgggtggcg atctagatat aagtgatact gttgggtgtt cattctggct ggttacagct 120
 ggtatgttag cggcaactgt gttctttttt gtagaaagag accaagtcag cgctaagtgg 180
 aaaacttcac ttgctgtatc tggtttaatt actggatag cttttggca ttatctctat 240
 atgagaggtg tttggataga cactggtgat accccaacag tattccaata tattgattgg 300
 ttattaaactg ttccattaca aatggttgag ttctatctaa ttcttgctgc ttgtacaagt 360
 gttgctgctt cattatttaa gaagcttcta gctggttcat tagtaatgtt aggtgctgga 420
 tttgcaggcg aagctggatt agctcctgta ttacctgctt tcattattgg tatggctgga 480
 tggttataca tgatttatga gctatatacg ggtgaaggta aggctgctgt aagtactgca 540
 agtcctgctg ttaactctgc atacaacgca atgatgatga ttattgttgt tggatggca 600
 atttatcctg ctggatatgc tgctggttac ctaatgggtg gcgaagggtgt atacgcttca 660
 aacttaaacc ttatataaa ccttgcgcac cttgttaaca agattcttatt tggtttgatc 720
 atttggaaatg ttgctgttaa agaatcttct aatgct 756

<210> 185

<211> 25

<212> DNA

<213> artificial sequence

<220>

<223> synthetic

<400> 185

aaattattac tgatattagg tagtg 25

<210> 186

<211> 24

<212> DNA

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<210> 187	
<211> 21	
<212> DNA	
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<400> 187	21
gaggtatata ttaatgtatc g	
<210> 188	
<211> 18	
<212> DNA	
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<400> 188	18
gatttaatct gtatcagg	
<210> 189	
<211> 45	
<212> DNA	
<213> artificial sequence	
<400> 189	45
tgttactggt attgcttct ggaattacat gtacatgaga ggggt	
<210> 190	
<211> 45	
<212> DNA	
<213> artificial sequence	
<400> 190	45
acccctctca tgtacatgta attccagaaa gcaataccag taaca	
<210> 191	
<211> 45	
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<400> 191	45
tgttactggt attgcttct ggcagtacat gtacatgaga ggggt	
<210> 192	
<211> 45	
<212> DNA	
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acccctctca tgtacatgta ctgccagaaa gcaataccag taaca	
<210> 193	
<211> 45	
<212> DNA	

02716.0005.NPUS01.ST25.txt

<213> artificial sequence		
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<211> 44		
<212> DNA		
<213> artificial sequence		
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<210> 195		
<211> 45		
<212> DNA		
<213> artificial sequence		
<400> 195	ttactggat agcttttgg aattatctct atatgagagg ttttt	45
<210> 196		
<211> 45		
<212> DNA		
<213> artificial sequence		
<400> 196	aaacacctct catatagaga taattccaaa aagctataacc agtaa	45
<210> 197		
<211> 45		
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<210> 198		
<211> 45		
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<400> 198	aaacacctct catatagaga tactgccaaa aagctataacc agtaa	45
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<211> 45		
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<213> artificial sequence		
<400> 199	ttactggat agcttttgg aaatatctct atatgagagg ttttt	45
<210> 200		
<211> 45		
<212> DNA		

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<210> 201
<211> 45
<212> DNA
<213> artificial sequence

<400> 201
ctggtgatac cccaacagta ttgcataata ttgattggtt attaa 45

<210> 202
<211> 45
<212> DNA
<213> artificial sequence

<400> 202
ttaataacca atcaatatac gcgaatactg ttggggtac accag 45

<210> 203
<211> 45
<212> DNA
<213> artificial sequence

<400> 203
ctggtgatac cccaacagta ttccaaata ttgattggtt attaa 45

<210> 204
<211> 45
<212> DNA
<213> artificial sequence

<400> 204
ttaataacca atcaatatac tgaaatactg ttggggtac accag 45

<210> 205
<211> 45
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<213> artificial sequence

<400> 205
ctggtgatac cccaacagta ttgcataata ttgattggtt attaa 45

<210> 206
<211> 45
<212> DNA
<213> artificial sequence

<220>
<223> synthetic

<400> 206
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02716.0005.NPUS01.ST25.txt

<210> 207
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<220>
<223> synthetic

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<210> 208
<211> 45
<212> DNA
<213> artificial sequence

<220>
<223> Synthetic

<400> 208 45
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<210> 209
<211> 45
<212> DNA
<213> artificial sequence

<220>
<223> Synthetic

<400> 209 45
ttactggat agcttttgg gaatatctct atatgagagg tgggg

<210> 210
<211> 45
<212> DNA
<213> artificial sequence

<220>
<223> Synthetic

<400> 210 45
aaacacccatct catatagaga tattccaaa aagctataacc agtaa

<210> 211
<211> 45
<212> DNA
<213> artificial sequence

<220>
<223> Synthetic

<400> 211 45
ttactggat agcttttgg tggatctct atatgagagg tgggg

<210> 212
<211> 45
<212> DNA

02716.0005.NPUS01.ST25.txt

<213> artificial sequence

<400> 212

aaacacacctct catatagaga taccaccaaa aagctataacc agtaa

45